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Minnesota MEDICINE

PUBLISHED MONTHLY BY THE MINNESOTA STATE MEDICAL ASSOCIATION

Minnesota State Medical Association

Ninety-first Annual Meeting

Rochester, Minnesota

April 13, 14 and 15, 1944

FEBRUARY, 1944

Vol. 27 . . . No. 2

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 27 February, 1944 No. 2

THE USE OF SULFONAMIDES IN ABDOMINAL SURGERY

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THE purpose of this paper is to report some impressions concerning the use of sulfonamide drugs in surgical wounds, especially in the peritoneal cavity to prevent peritonitis. Our interest was first stimulated following the work of Jenson, Johnsrud, and Nelson concerning the local implantation of sulfonamides in compound fractures. Shortly after the publication of their paper in 1939, we used sulfanilamide in the peritoneal cavity of three patients. Two of the patients had peritonitis and subsequently died. One patient who had an infected hematoma in the mesentery after being kicked by a horse, made a surprisingly uneventful convalescence after the abscess was drained and sulfanilamide placed in the abscess cavity. In these three cases, 12 grams of sulfonamids were placed in the peritoneal cavity. We subsequently learned that such large doses are unnecessary and may be dangerous.

Loria, in 1937, used prontosil and prontylin intramuscularly in a case of generalized hemolytic peritonitis with a successful result. In 1939, Long and Bliss, in addition to the oral and parenteral administration of sulfonamides, suggested its use in solution through a draining sinus, into the abdominal cavity, following surgical drainage. In 1941, Mueller reported using powdered crystalline sulfanilamide directly in the peritoneal cavity after surgery. This was followed by an additional report with Thompson. Rippy used sulfanilamide intraperitoneally in treating gunshot wounds of the abdomen. Ravdin, Rhoads, and Lockwood believe sulfanilamide therapy to influence favorably the peritonitis of appendicitis which is usually a mixed infection. Wangensteen implants sulfanilamide about the anastomosis in gastric resections and colonic resections. Varco found that the mortality of esophago-jejunostomy after complete gastric resection was remarkably lowered if sulfonamides were placed around the sutured sites. Ravdin and Long stated that in the victims of abdominal injuries crystalline sulfanilamide was of great benefit to the patients that were operated upon. Loria, in a series of 100 cases of penetrating gunshot wounds of the abdomen admitted to the New Orleans Charity Hospital, reports forty-nine cases receiving some form of chemotherapy plus surgery with a mortality of 18.4 per cent. Of fifty-one patients receiving no sulfonamide treatment, the mortality was 50.9 per cent. Moorhead's report indicates that the administration of local sulfonamide materially reduces wound morbidity and the mortality. Riba and Ateus state that infected wounds treated locally with powdered sulfathiazole uniformly healed more rapidly and showed less reaction than did similar untreated wounds. When sulfathiazole powder was introduced immediately into a contaminated wound, bacteriostasis of the staphylococcus aureus could be accomplished. When the drug was introduced into an infected wound, the extension of the infection was arrested and reparative processes were initiated. Closure of infected sulfa-

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Read at the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 19, 1943.

thiazole-treated wounds was followed immediately by general improvement of the animal. Walter and Cole implanted sulfadiazine in the peritoneal cavity and wounds of sixty-eight patients operated upon for various lesions, most of which had peritoneal contamination. A similar study in which sixty-two patients were used was conducted with sulfanilamide. They obtained an incidence of wound infection of 4.04 per cent with sulfadiazine and 14.05 per cent with sulfanilamide. Since there was more contaminated cases in the sulfadiazine series, they believed that sulfadiazine was superior to sulfanilamide in the prevention of wound infection.

In evaluating the effect of sulfonamides in the prevention of peritonitis, it is important to have adequate controls. While a drug may seem to do wonders after a certain surgical procedure, it is important to know what would happen if the drug were not used. The most flagrant violation of this "control" idea is in reports of the results of treatment of peritonitis following an appendicitis by means of sulfonamides. In our experience, the mortality of appendical peritonitis treated without operation and without sulfonamides varies from 4 per cent in children to 20 per cent in adults. While the use of sulfonamides may lower these mortalities, a more important factor would be the earlier diagnosis and treatment of appendicitis.

In clinical cases, in evaluating the effect of sulfonamides on surgical mortality in the prevention of wound infection and peritonitis the following factors also have to be taken into consideration:

(a) The experience of the operator. If one does his first cases well, all things being equal, he will do the next cases that much better. This factor is rarely taken into consideration in reporting the results of operations for carcinoma of the rectum, appendicitis, etc., with and without the use of sulfonamides. The sulfonamides are usually used in the later cases and the better results could be attributed to the increased skill and experience of the surgeon just as well as to the use of the drug. In one stage abdomino-peritoneal resection for carcinoma of the rectum, the mortality is about 6 to 10 per cent in the hands of most experienced operators whether sulfonamides are used or not.

(b) Alternate cases should be used. To compare cases treated in one period with those of another period is fraught with error as is best illustrated in the cases of empyema where there is a seasonal variation in the virulence of the disease.

(c) The time factor. If sulfonamides are used before gross infection is present, the results logically will be better than when they are used in the presence of gross suppuration.

What Wounds Should Receive Sulfonamides

1. *There is no indication for the use of sulfonamides in "clean" surgical cases.*—A few years ago, Dr. N. K. Jensen and the author studied the effect of sulfonamides in the healing of clean wounds in dogs. Under pentathol anesthesia, incisions were made with sterile precautions, through the skin, fascia, and muscle on each side of the vertebral column of a dog. The wounds were sewed in layers with interrupted cotton sutures, sprinkling sulfanilamide in the layers on one side but not the other (control). There was no difference in the incidence of wound healing or wound infection.

2. *In infected wounds, the sulfonamides are not of much value, unless a debridement of the grossly infected tissue is carried out first.* Even then it was questionable if the healing time is shortened as compared to controls. The action is chiefly dependent upon two factors: (1) the concentration of the drug in contact with the organisms; (2) the amount of free peptones and other sulfonamide-inhibiting substances present. The maximal effect is obtained only by proper preparation of the wound. Inadequate drainage or failure to debride a wound of all necrotic tissue and pus not only prevents the drug from reaching the wound depth, but also inhibits the drug's action. Adequate debridement usually means surgical excision of all nonviable tissue and thorough irrigation of the wound with large quantities of sterile saline solution. Some merit may be attached to irrigating the wound with hydrogen peroxide, since these substances help to provide an aerobic medium in which the sulfonamides are more effective.

The type of wound to some extent limits the effectiveness of local application. Deep, pocket-

ed wounds and inaccessible walled-off abscesses or drainage fistulas cannot be benefited unless the wound is first converted into an open accessible area by proper surgical drainage. To some extent there may be limited diffusion into surrounding tissues following local application of the powdered drug. For this reason sulfanilamide, which is the most diffusible and readily absorbed of the current sulfonamides, is frequently preferred to the other drugs. Any such diffusion, however, is probably not extensive, for even with local tissue concentration of 800 mg. per cent, systemic concentrations usually do not exceed 2 or 3 mg. per 100 c.c. of blood. Such a high local concentration of any of the known sulfonamides is bacteriostatic for all organisms commonly encountered in wounds. Experiments *in vitro* devised to prove the superiority of one drug over the other are not well adapted to surgical infections, for if an adequate amount is used in a well prepared wound, there is little specificity apparent, and one sulfonamide seems to be as effective as another, regardless of the bacterial flora.

Most pyogenic wounds, if free of debris and adequately drained, become practically sterile after three or four days of powdered sulfanilamide applications. In one reported series of eighty grossly infected surgical wounds, smears and plated cultures were taken before debridement and at frequent intervals during treatment. In practically all cases a mixed flora was found. Some of the wounds, particularly chronically infected ulcerations, contained four or five different types of organisms. To estimate the bacterial growth of these lesions quantitatively, an arbitrary standard was devised. The wounds were each irrigated daily with 100 c.c. of sterile saline solution, and 1 c.c. of these washings was plated on blood agar medium. Following each irrigation sufficient sulfanilamide powder was placed in the wound to cover the entire area. Most of the wounds, if kept free of debris and adequately drained, became practically sterile as estimated by this plating method, after from three to six days. Streptococci and staphylococci were the predominating organisms, with Pseudomonas pyocyaneus and Escherichia coli and diphtheroids present in many wounds. After six days fifty-six of the eighty cases showed very little or no growth, and all of the rest showed a marked diminution in colony counts. In several cases of draining and secondarily infected tuberculous sinuses none of the sulfonamide drugs had any effect in changing or diminishing the secondary infection. The actual choice of sulfonamide drug seems unimportant compared with the necessity for preparing the wound to receive the drug. None of these drugs is an effective antiseptic in the presence of true sepsis.

3. *Wound healing in presence of sulfonamides is still an unsettled subject.* Retarded healing has been reported by several workers. Other surgeons have disclaimed this, observing no delay or weakness in primary union of experimental and clinical wounds and fractures. In order to understand this apparent discrepancy, biopsies in one series were taken from the edges of infected wounds, most of which were undermined infected decubitus ulcers. Biopsies were repeated at frequent intervals during treatment, and several general observations were made. In no instance was there gross or microscopic evidence of sulfanilamide interfering with the normal physiology of healing. There was no evidence that the drug kills off fibroblasts or epithelium. The powder, however, is slowly absorbed, and in fairly clean incised wounds it undoubtedly does prevent early contact of the contiguous wound edges, thus slowing healing. Such wounds, when healed, appear fully as strong as when the drug is not used, and leave just as little scar. Sulfanilamide powder, when freshly applied, is frequently accompanied by increased oozing of small blood vessels; in several herniorrhaphies in which 10 Gm. of the powder was implanted subcutaneously, this oozing was sufficient to form a hematoma and necessitate drainage of the serosanguineous fluid. Because of these various local reactions, more judicious use of the sulfonamides and smaller doses are indicated. Topical application of the drug in any contaminated or infected wound is certainly advantageous and should be followed; its routine use in clean operative wounds in which normal healing is expected is unnecessary and should be discouraged.

4. *It is the case where there is accidentally or transitory contamination of the peritoneal cavity that sulfonamides are most effective.* The literature is full of such reports, but the cases are poorly controlled. Clinically, this is difficult to do, both in a qualitative and quantitative sense. Experimentally, unless the number and type of

organisms are controlled, the results are meaningless. In 1939, the author studied the effect of certain drugs in the prevention of peritonitis in rabbits. Qualitative and quantitative analyses were made of a culture of known virulence. The peritoneal cavity of rabbits were inoculated with this culture and the survival rate noted. If, at the same time, sulfanilamide was placed in the peritoneal cavity, more of the animals lived than if the powder was not used (control). The effect of Coli bactragen, Bargens vaccine, sodium ricinoleate 1 per cent, ether, aqueous mertheolate, etc., were also studied but the sulfonamides were better in preventing peritonitis. If the sulfonamides were used after the peritonitis was well dedeveloped, the survival rate was not materially influenced. Sulfonamides are most effective in the pre-peritonitfs stage. When infection is present, their efficiency is greatly reduced. This would be expected as sulfonamides adhered to a protein erudate, as pus, is inactivated. Also, the mechanical walling off as occurs in intraperitoneal infections would limit their efficacy. The author knows of no well-controlled, large series that shows sulfonamides to be of definite value in the treatment of generalized peritonitis of enteric origin.

Summary

The following impressions have been presented concerning the use of sulfonamides in abdominal surgery.

1. There is no indication for the use of sulfonamides in "clean" surgical cases.

2. In infected wounds, sulfonamides are not of much value unless a debridement of one grossly infected tissue is carried out first.

3. Sulfonamides, if dusted lightly into the wound, apparently do not interfere with the normal physiology of wound healing, but they may interfere with wound healing by causing oozing or mechanical separation of tissue edges if too large amounts of the drug are used.

4. Sulfonamides are most effective in the pre-peritonitis stage. When gross infection is present, their efficacy is much reduced.

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THE USE OF DICUMAROL IN SURGERY

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DICUMAROL [3,3'-methylene-bis-(4-hydroxycoumarin)] is a compound found in spoiled sweet clover which has been known to produce a hemorrhagic disease of cattle.[15,16] It was first isolated from spoiled sweet clover and later synthesized by Link and his associates at the University of Wisconsin.[6-9,11,13,17] When dicumarol is administered orally to human beings as well as to animals, the prothrombin content of the blood is reduced as shown by a prolongation of the prothrombin time.[3,5] This is thought to be the result of inhibition of the formation of prothrombin. The only other physiologic effects which have been noted after administration of dicumarol are prolongation of clot retraction time and elevation of the sedimentation rate of the erythrocytes. The coagulation time of the blood is usually prolonged but not necessarily proportionately to the prolongation of prothrombin time.

Because prothrombin is one of the substances concerned in intravascular as well as extravascular coagulation of the blood, dicumarol has

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Read before the annual meeting of the Minnesota State Medical Association, Minneapolis, Minnesota, May 19, 1943.

TABLE I. NONFATAL POSTOPERATIVE PULMONARY EMBOLISM AND INFARCTION

	Control group; anticoagulants not administered		Dicumarol administered	
	No.	Per Cent	No.	Per Cent
Total cases	678	100	111	100
Subsequent venous thrombosis, pulmonary embolism or infarction	297	43.8	2	1.8
Subsequent fatal pulmonary embolism	124	18.3	0	0

been used in an attempt to prevent postoperative thrombosis and embolism.[1] Some experimental work on animals also indicates that, if the prothrombin time is prolonged by dicumarol, intravascular thrombosis is inhibited.[4,10,14]

Dicumarol has been administered to 624 surgical patients at the Mayo Clinic during the immediate postoperative period. One hundred eleven of these patients had had pulmonary embolism or infarction and had survived. In such cases it has been shown[2] that the risk of further thrombosis with or without embolism is high (43.8 per cent) and that the risk of a subsequent fatal embolism is 18.3 per cent. In only two of the 111 cases did we encounter any subsequent thrombosis and in both of these instances the prothrombin time was probably not adequately elevated. No fatal embolism was encountered in the group of cases in which dicumarol was administered (Table I).

Dicumarol was given to eighty-three patients who had postoperative thrombophlebitis. The expected statistical incidence of further thrombosis and embolism in this group of patients was 31 per cent and the expected incidence of fatal embolism was 5.7 per cent.[2] Further thrombophlebitis developed in only two of the cases in this group while the prothrombin times were elevated and embolism did not develop in any of the cases (Table II).

A third group of thirty patients who received dicumarol had had thrombophlebitis or pulmonary embolism following a previous operation or from any cause during the year prior to the immediate operation. Thrombosis or embolism did not develop in any of these thirty cases. Accurate statistics showing the risk of thrombosis

TABLE II. POSTOPERATIVE THROMBOPHLEBITIS

	Control group; anticoagulants not administered		Dicumarol administered	
	No.	Per Cent	No.	Per Cent
Total cases	897	100	83	100
Subsequent episode of thrombophlebitis	95	10.6	2	2.4
Subsequent fatal pulmonary embolism	51	5.7	0	0

and embolism in this group of cases are not available but such data as are available indicate that there is about a 40 per cent risk of some thrombosis or embolism and about a 10 per cent risk of fatal embolism.

A fourth group consisted of 259 patients who had undergone abdominal hysterectomy. In this group, dicumarol was given purely for prophylactic purposes since none of these patients had had evidence of thrombosis or embolism previously. The expected incidence of thrombosis and embolism in this group of patients was 4 per cent, of fatal embolism 0.7 per cent.[2] Thrombosis or embolism did not develop in any of these cases.

A fifth group of 141 patients who had undergone various other types of operations and who, because of obesity, varicose veins, anemia, heart disease, or because of unavoidable trauma to veins at the time of operation were felt to be increased risk for postoperative thrombosis and embolism also received dicumarol for prophylactic purposes. In none of these cases did postoperative thrombosis or embolism develop.

These experiences indicate that adequate elevation of prothrombin time by the administration of dicumarol is almost completely effective in the prevention of postoperative thrombosis and pulmonary embolism. It also supports the concept that embolism only develops when the thrombus is of very recent origin and that, therefore, embolism can be prevented in cases of known thrombophlebitis or venous thrombosis if sudden extension of thrombosis or thrombosis in other veins is prevented. There is no evidence to indicate that dicumarol has any effect on thrombosis or embolism that has already occurred.

The only untoward effect of dicumarol is that

TABLE III. INCIDENCE OF BLEEDING AMONG PATIENTS TREATED POSTOPERATIVELY WITH DICUMAROL

Reasons for dicumarol therapy	Total patients treated	Minor bleeding		Major bleeding. Transfusion required	
		No.	Per Cent of Total	No.	Per Cent of Total
Postoperative pulmonary embolism	111	5	4.5	2	1.8
Postoperative thrombophlebitis	83	3	3.6	1	1.2
Thrombosis or embolism after previous operation or within one year prior to immediate operation—prophylaxis	30	1	3.3	1	3.3
Abdominal hysterectomy—prophylaxis	259	17	6.6	8	3.1
Other operation—prophylaxis	141	7	5.0	8	5.7
Total	624	33	5.3	20	3.2

it occasionally causes bleeding. This bleeding may occur at the operative site, from the nose, or from the urinary tract. If bleeding occurs, it can almost always be controlled by the transfusion of freshly drawn citrated blood; occasionally more than one transfusion is necessary. Vitamin K is usually not effective in lowering the prothrombin time which has been elevated by administration of dicumarol and does not inhibit the effect of dicumarol. Minor bleeding occurred in 5.3 per cent of our 624 cases (Table III). This was of only slight degree and did not require transfusion. Major bleeding requiring transfusion occurred in 3.2 per cent of the cases. It occurred less frequently in cases of thrombosis or embolism than in the group in which dicumarol was given purely for prophylaxis. Only one death from hemorrhage occurred in the entire group and in this case it is unlikely that the dicumarol was a factor since the prothrombin time was only slightly elevated when the hemorrhage occurred.

Although dicumarol is easily administered by mouth it is necessary to individualize the dose carefully for each patient in order to produce an adequate but not excessive effect. Absorption of the drug from the intestinal tract probably varies in different cases and there is some evidence that the effect may vary with the weight of the patient but there are other differences in sensitiveness to the drug which are not dependent on absorption or body weight. The dose should be guided by the effect on the prothrombin time. At the Clinic we use Magath's modification of the Quick method,[12] which in our experience allows accurate and consistent determinations. The test is done daily in all cases in which dicumarol is being administered. Normal prothrombin times with this test are from eighteen to twenty-two seconds. Experience has shown that thrombosis is very rare if the prothrombin time is greater than twenty-seven seconds and that major bleeding is very rare if it is less than sixty seconds; therefore it is desirable to keep the prothrombin time (measured by the above method) between twenty-seven and sixty seconds during the period of administration of the drug.

The plan of administration of dicumarol in the 624 cases mentioned in this paper was as follows: The drug was dispensed in capsules, each containing 100 mg.* In the cases in which pulmonary embolism or thrombophlebitis had developed, 300 mg. were given as soon as the diagnosis was made. A single dose of 200 mg. was given on the following day and on each succeeding day that the prothrombin time was less than thirty-five seconds (Figs. 1, 2 and 3). No dicumarol was given on days when the prothrombin time was thirty-five seconds or more. Occasional exceptions were made as follows: If the prothrombin time was rising rapidly no dicumarol was given even though the prothrombin time had not quite reached thirty-five seconds, and if the prothrombin time was falling rapidly a dose was given the day when it was still slightly greater than thirty-five seconds. In cases in which the patients were very sensitive to the drug, doses of 100 mg. occasionally were used and in cases in which the patients were very resistant to the drug, doses of 300 mg. occasionally were used. If the drug was administered purely for prophylactic purposes, administration was begun on the third postoperative day. The prothrombin time was kept elevated until the patient became ambulatory and then was allowed to return to normal. In some cases it was kept

*The dicumarol used in this study was supplied by the Abbott Laboratories of North Chicago, Illinois.

elevated for more than two months without evidence of untoward effect on the patient (Fig. 4). It must be emphasized that the effect of administration of dicumarol is not immediate. After administration is begun a period of from twenty-four to seventy-two hours, occasionally longer, elapses before the prothrombin time exceeds thirty-five seconds. Also, the effect persists for from two to ten days after administration of the drug is discontinued. If an immediate anticoagulant effect is desired, it is advisable to begin administration of heparin and dicumarol at the same time. Since heparin does not affect the prothrombin time this can be used as an index of the effect of dicumarol alone and the administration of heparin can be discontinued as soon as the prothrombin time reaches thirty-five seconds.

Absolute contraindications to the use of dicumarol are as follows: (1) subacute bacterial endocarditis, (2) renal insufficiency from any cause, (3) purpura of any type, (4) blood dyscrasia with tendency to bleeding, and (5) existing prothrombin deficiency such as might occur in hepatic disease associated with jaundice and malnutrition.

Relative contraindications to the use of dicumarol are: (1) existence of ulcerative lesions, open wounds and a potentially bleeding surface, (2) necessity for second surgical operation during the next two weeks, (3) vomiting due to gastric or intestinal obstruction, or the use of

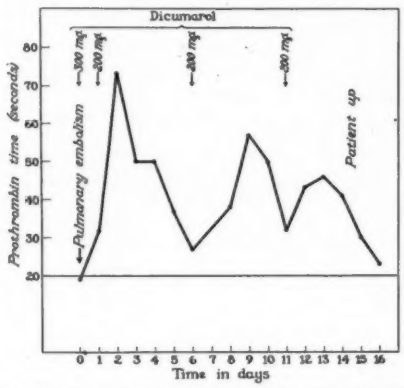

Fig. 1. Strong response to dicumarol in case of pulmonary embolism.

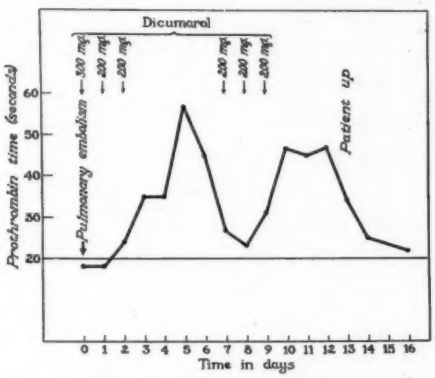

Fig. 2. Slightly delayed response to dicumarol in case of pulmonary embolism.

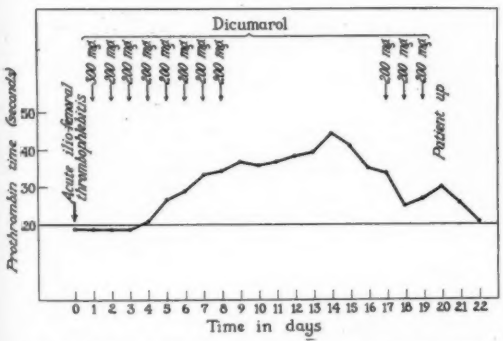

Fig. 3. Slow response to dicumarol in case of thrombophlebitis and considerable resistance to the drug.

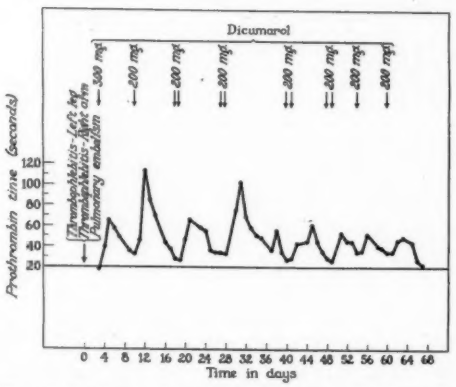

Fig. 4. Response of prothrombin time to administration of dicumarol during a period of two months, showing relatively consistent effect of the drug after repeated doses.

continuous gastric drainage, (4) operations on the brain or spinal cord.

If pulmonary embolism or thrombophlebitis develops in cases in which there are relative contraindications to the administration of dicumarol, it should be recognized that the risk of fatal embolism if no anticoagulant therapy is used may be considerably greater than the risk of bleeding if dicumarol is administered.

Clinical evidence shows that carefully controlled and individualized administration of dicumarol by mouth is effective in the prevention of postoperative venous thrombosis and pulmonary embolism. The drug has no effect on thrombosis or embolism that has already occurred. There is slight risk of bleeding in cases in which dicumarol is being administered but if this occurs it can be controlled by transfusion of freshly drawn citrated blood.

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USE OF BLOOD AND BLOOD SUBSTITUTES IN SURGERY

M. G. GILLESPIE, M.D., and J. E. BLUMGREN, M.D.

THE popularity of blood and blood substitutes has grown rapidly since the onset of the present world conflict. The inadequate and time-consuming factors of whole blood transfusions were discovered during the first World War. These factors have stimulated an extensive literature which is increasing monthly. Therefore, in dealing with this subject and its association with surgery, we make no attempt at a complete review, but shall merely stress a few of the most important practical aspects.

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Many substances which were thought to fulfill the requirements for a blood substitute have been investigated. Acacia[18] was popular for a considerable time. However, in recent years, it has been abandoned because of its harmful effects through plugging the reticuloendothelial system, especially the liver, and the formation of pseudo-agglutination of the red blood cells. Pectin,[6] isinglass[15] (fish gelatin) and many other substances have been used with varying degrees of success. Interest in the albumin fraction of human plasma has recently been aroused by Cohn.[7,8]

Bovine serum and that of other animals has been quite thoroughly investigated. A recent re-

port from the University of Minnesota[10] states that these serums have met the necessary requirements, but reactions are frequent and serum sensitivity may follow. Thus, these substances may not be repeated with safety even though the first exhibition is uneventful.

Amino acids,[1,5] usually in the form of hydrolysed caseins are receiving extensive study. Their reception has been variable, but recent indications seem to be more favorable. Their use in shock is naturally limited, but in the replacement of protein have a very definite place. One must remember, however, that body protein is formed largely in the liver from amino acids. Therefore, in the presence of liver damage, these acids are not utilized properly, and it may be necessary to resort to plasma.

The future holds many secrets and, undoubtedly, the answer to the problem of an ideal blood substitute, but at the present time whole blood, plasma and serum are in the front position. Citrated whole blood is familiar to all. It may be stored under proper refrigeration up to eight or ten days before it becomes unfit for intravenous use. Dilute sugar solutions have been developed which allow storage for a longer period. DeGowin[4] has kept whole blood in such a solution for as long as thirty days. In either case, at any time before the expiration date, the plasma may be drawn off, thereby making blood banking a satisfactory and profitable procedure. Plasma and serum are maintained in liquid, frozen and dried forms. In civilian practice frozen plasma is probably the most satisfactory,[12] but this is not the time to go into a discussion of the various forms, but merely to state that they all have their place.

The importance of blood and blood substitutes in surgery at the present time seem for the most part to evolve about (1) booster transfusions (2) shock and (3) protein balance. The necessity and importance of fluid, electrolytic and carbohydrate balance as maintained by intravenous saline, glucose and other like solutions is common knowledge.

The improvement of the anemic patient following a whole blood transfusion is readily understood. The "booster" effect following a whole blood transfusion is not as easily explained, but everyone is aware of this response in the patient who seems to be lagging for some unknown reason. This response is undoubtedly due to many factors, some of which may be immune bodies as immune transfusions[17] employed in certain conditions give remarkable results and their use is well founded. Whatever the reason may be, "booster" transfusions have a definite place in surgery as well as in the other fields of medicine.

Shock[14] whether primary or secondary, whether from hemorrhage, trauma, burns or toxic, has one feature in common, namely, a decrease in blood volume. It is this reduced volume that needs immediate attention.

If the blood loss has been great, as in external hemorrhage, hemoconcentration is not present, and red blood cells as well as blood volume are needed. However, the immediate use of whole blood is not required as it has been shown[9,11] that the body can tolerate a reduced erythrocyte count for some time, but the reduced volume soon brings on undesirable consequences. Crystaloid solutions will give the necessary volume for a short time but will not maintain the improved level.[11] Ivy, et al.[9] found that crystaloids will bring back the blood pressure and ward off shock, and if followed by plasma or serum, the improved volume can be kept constant. If whole blood is available, it may be used in the place of plasma; if not, use plasma, and after the shock has been overcome, then and only then, is it time to become concerned with the anemia.

Hemoconcentration (as determined by hemoglobin, erythrocyte counts and hematocrit readings) is usually associated with plasma loss and a reduction of plasma proteins. This is the condition in burns, and if not corrected soon becomes irreversible and leads to death. Here, as mentioned before, crystaloids alone will not produce a satisfactory result.

More often they aggravate the condition[11] by producing an increase of capillary permeability and more plasma loss. Plasma or serum in sufficient quantities will cause a reversal of this process and establish a normal state. Whole blood will also do this, but red cells have not been lost, are therefore not needed and may produce ill effects by encouraging stasis in areas of the body with sluggish blood flow.

The prevention of shock when possible is the best treatment. Therefore, it is better to anticipate obvious shock and give adequate amounts

of a blood substitute before the condition becomes too apparent. This procedure in surgery will reduce surgical shock to a minimum.

Whipple has recently stated[3] "—plasma protein takes an active part in the internal protein metabolism of the body—serves to supply all the protein requirements of the body." This certainly makes plasma proteins an important body constituent. Casten, et al.,[2] associates the results of protein deficiency in surgery with peripheral edema, visceral edema, inhibition of gastro-intestinal activity and the inhibition of wound healing. Many of these points are not well appreciated by many physicians and are listed here as reminders.

Wangensteen[16] has dealt with plasma proteins under the heading of "nitrogen balance" and by the judicious use of blood and its substitutes in conjunction with a strict hospital regime has accomplished almost unbelievable results. With the evidence that protein particularly is lacking and the fact that certain animo acids have a great lypotrophic effect on the liver, Casten, et al.[17] have treated what they call "liver weaklings" with plasma and amino acids, thereby reducing postoperative hypoproteinemia in many of their patients. There are many instances [1,5,6,7] in which plasma or serum has returned plasma proteins to approximately normal levels when all other methods have failed. Amino acids have been referred to in connection with plasma protein restoration. Plasma proteins are most important in osmotic physiological interchange. They can be restored when lost by adequate intravenous therapy when other efforts have been ineffective.

Sufficient dosage of blood or serum is all-important. The following examples will illustrate the advantage of sustained intravenous blood restoratives given until the purpose desired is attained. A forty-four-year-old woman recently presented herself to Dr. W. G. Strobel complaining of severe, constant vaginal bleeding of three months' duration. The bleeding had been so severe, that she became very weak spending most of her time in bed. Examination disclosed a small pedunculated fibroid presenting at the cervical os; a red blood count of 1,800,000 and a hemoglobin of less than 10 per cent. In preparation for surgery she received 3,000 c.c. of whole blood in a period of four days. Two days after the last transfusion she went to surgery with a hemoglobin of 89 per cent and a red blood count of 5,500,000. The operation proved to be quite simple and she was able to leave the hospital a few days later. At that time her hemoglobin read 89 per cent and the red blood count was 4,710,000. A simple condition had become very serious, but adequate and proper therapy had returned a semi-invalid to a normal healthy citizen.

The second example is a patient of Dr. W. C. Martin. This twenty-two-year-old woman, while building a fire with kerosene suffered second and third degree burns about her face, chest, arms, hands, and thighs. She received emergency treatment from her family physician and was then transported by automobile some 125 miles to Duluth. On arrival she was chilled, nauseated, vomiting and in considerable pain. Blood studies revealed a hemoglobin of 135 per cent, a red blood count of 7,740,000 and a total blood protein of 4.6 per cent. A hematocrit reading of 54 volumes per cent was obtained two days later at which time her hemoglobin read 109 per cent. The first seventy-two hours she received 2,750 c.c. of undiluted plasma, and approximately the same amount of glucose in distilled water. Glucose in distilled water was used to avoid threatening shock. This point has been stressed in our discussion of shock. This intravenous therapy relieved the nausea and vomiting and reduced the hemoglobin to 92 per cent and the hematocrit to 44 volumes per cent. The total proteins had risen to 5.5 per cent and gradually increased without further plasma infusion to 6.6 per cent. Her course has been very satisfactory and she will soon leave the hospital. As in the previous case, the dosage was not taken for granted, but was based on facts determined by the general condition of the patient and variation of the known blood normals. One cannot give 500 c.c. or even 1,000 c.c. of blood or plasma and expect satisfactory results in all cases. Give until the desired results are obtained. Blood and blood substitutes are not cure-alls, but when properly used, they have no equal.

In conclusion, we have not covered all phases of this broad field, but have tried to point out some of the important aspects of blood and blood substitutes in connection with medicine and surgery. Their value as booster transfusions and in the treatment of shock and hypoproteinemia has been stressed. The question of dosage has been

illustrated by two cases, and the importance of giving blood restoratives in sufficient quantities to bring about the desired result and the using of available laboratory methods as a guide has been emphasized. The popularity of blood and blood substitutes has brought about many abuses in their use, but in spite of these, plasma, serum and whole blood are today proving their worth with the armed forces and on the home front.

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DUHRSSEN'S INCISIONS

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DYSTOCIA during labor may be translated as difficult or abnormal labor, in contrast to entosia or normal labor. DeLee maintained that labor cannot be called a normal function; that bodily damage of some degree always attends it even though this may be nothing more than the invariable pelvic floor injury.

Dystocia may arise from maternal or from fetal causes or from both combined. The maternal causes, in general, are: (1) anomalies of the uterine contractile forces; (2) developmental anomalies and gynecologic abnormalities, and (3) contraction or maldevelopment of the bony pelvis.

In this paper I am interested in only the dystocia from a cervical complication seen sometimes in elderly primipera.

This particular type of cervix is the long rigid cervix known as conglutinatio orificii externi. Titus[1] describes this as follows: "In this condition seen in primiparous women and often repeated in subsequent deliveries, the cervical canal is obliterated, the head is advanced well down into the pelvic cavity, the overlying cap is thinned out but the external os fails to dilate. Labor continues hour upon hour but after thirty-six or forty-eight hours there may be but 2 or 3 cm. dilatation."

The treatment of choice is cesarean section, but after labor has progressed many hours, the time has passed to safely perform this operation. Treatment then resolves itself into multiple incisions of the cervix described by Dührssen in 1890. He utilized the principle that multiple shallow incisions in the partly dilated cervix would afford room for the passage of the infant without dangerous lacerative extension of these incisions.

Four prerequisites are necessary to justify this procedure.

1. The patient must be in a hospital.
2. The cervix must be completely effaced.
3. There must be at least 4 centimeters dilatation of the uterine cervix.
4. There must be indication that many more hours of labor would be required before dilatation would be complete, and that fetal injury or death would follow if labor continued until dilatation was completed by uterine contractions.

The incisions should be so placed that laceration, if it occurs, could not readily extend into

Read at the annual meeting of the Southern Minnesota Medical Association, Austin, Minnesota, August 23, 1943.

the uterine arteries. Consequently, lateral incisions must not be made. The proper compass points for these incisions are northwest, northeast, and south, or at 10, 2, and 6 of the clock. These may be made, if preferred, at 12, 4, and 8 of the clock.

It should be reiterated that these incisions are valueless and dangerous unless the patient is so advanced in labor that the internal os is completely dilated, the cervical canal effaced, and the external os at least 4 cm. dilated.

I have altered this technique in that the posterior incision is omitted. Incisions at 10 and 2 of the clock are all that is necessary in the great majority of cases. These two must be sufficiently deep to permit free passage of the fetal head. After the incisions are made labor is permitted to progress, and the patient is encouraged to bear down. After a few pains the presenting part is forced into the pelvis and forceps can be easily applied and delivery completed. Some state that suturing the cut edges is not necessary, but to insure hemostasis sutures should be placed at the upper angle of each incision, and interrupted sutures placed along each incision to the external os. To prevent postpartum bleeding from a poorly contractive lower uterine segment it is safer to pack the uterus with two-inch gauze leaving this in place twenty-four to thirty-six hours.

Summary

Dystocia may develop from a nondilatable cervix.

Treatment early is by cesarean section.

Late in labor cervical incision, as described by Dührssen, is the treatment of choice in selected cases.

The incisions should be sutured after delivery to insure hemostasis.

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THE MANAGEMENT OF COMPOUND HAND INJURIES

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THE hand, being the greatest organ of service to the brain or control station, is by the same token the most vulnerable. Major consideration must be given to its treatment and one must have a first-hand knowledge of the anatomy, physiology and composite function of the integral parts of this highly useful appendage.

While the majority of wounds to the hands occur among those employed in ordinary or skilled labor, no small percentage results from accidents about the home and farm. That this latter etiology is of no small import is shown by the number of Minnesota men rejected by Selective Service or given limited service because of disabilities which are the direct result of injuries from machinery and implements on Minnesota farms. The Minnesota Safety Council, with its excellent leadership, has recently stressed accident prevention about the Minnesota farms and homes and as a result of its efforts, there has been a definite decrease of hand injuries through this cause. Other sources are automobile accidents and sports.

Probably the most important single step essential to the successful treatment of severe compound hand injuries and one which supersedes all other details in importance is thorough gentle cleansing of the wound and surrounding area with mild soap and water, by or under the direction of the responsible physician, properly scrubbed and masked. Omission of this procedure may be followed by unsatisfactory or compromising results regardless of the excellence of tissue approximation.

Obviously, wounds of minor extent do not need an elaborate setup. However, they do deserve the thorough cleansing, protection by a face mask of those about the wound, and clean hands and gloves by the physician repairing the wound.

When first seen in the office or emergency room, the wound is rapidly appraised. If it is minor in nature, involving only the matter of skin sutures, cleansing and suture may be imme-

From the Two Harbors Hospital. Read before the Northern Minnesota Medical Association, Duluth, Minnesota, August 28, 1943.

diately carried out. If one suspects or can see that deeper structures have been penetrated, sulfonamid powder and sterile dressings under slight pressure are applied with a splint if necessary. The patient is made comfortable and given sedation and an x-ray film taken if indicated while preparations are being made for definitive treatment. This definitive treatment, while a minor operation, is one which requires all the precautions and careful technique of a major operation. It is best not attempted except in the operating room.

The first object to be obtained is the creation of a clean wound and this requires proper materials, and plenty of time. Haste is never more poorly repaid than in the repair of hand injuries. Dirt and grease in the skin about the wound may be removed by benzine or ether, preliminary to the use of soap and water. Sterile white liquid soap, water, and sterile cotton balls are used for the cleansing, followed by saline irrigation. The careful and methodical washing of the wound takes minutes which to the observer and assistants may seem a sacrifice of valuable time. However, the time is not wasted for, in addition to the initial objective and necessity of obtaining a clean wound, the time may be advantageously utilized in a more thorough contemplation of the wound and observance of the minor details and extensions and depths that might otherwise be overlooked. Time for sterilization of any additional instrument or material is available and an opportunity for the mental formulation of a logical method of repair is presented. The confidence of the patient is enhanced by the careful attention given him and his wounds.

In the technique of cleaning the wound, a gauze dressing or light pack is held on the wound as the surrounding area is washed. This may be done by an assistant and when completed, the wound may be draped and the surgeon cleanse the wound itself, devoting assiduous attention to the wound, gently removing clots and debris with instruments, then minutely inspecting and cleansing the wound surfaces, pockets and crevices, retracting severed structures. Irrigation with saline is used freely during the process and when washing with soap and water is completed. From ten to twenty minutes is necessary to adequately clean a wound, depending on the nature, extent, gross contamination and length of time elapsed since injury.

The procedures of wound excision and wound debridement are seldom necessary or advisable in the usual hand wounds and may be confined in the majority of instances to excision of tags. If necessary, debridement should be done before the process of wound cleansing is entirely completed.

In dealing with hand injuries, one must constantly bear in mind the frequency with which the hands harbor pathogenic bacteria, particularly the hands of the industrial worker. Minor infected abrasions, dermatitis, mild furunculosis are frequently seen. Consequently, these hands particularly need enthusiastic washing of the surrounding area.

The importance of obtaining a clean wound lies in the fact that it is essential in order to obtain primary healing. Unless one is reasonably certain that primary healing will result, the immediate repair of severed tendons and nerves is not justified. Gross infection of a wound involving sutured tendons or a sutured nerve is disastrous.

The standards of technique, hemostasis and care of suturing must be revised upward in dealing with the hand. Every safeguard must be exercised to prevent any possible fibrosis, such as the control of minute hemorrhage. In ligation, only the vessel itself must be ligated and no necrotic or strangulated tissue bits should remain. The suture of tissues must be painstaking so that union will leave the absolute minimum of scar. The dressing following the repair must have sufficient pressure to reduce lymph stasis and maintain an even, constant pressure.

In a short discussion, all phases in the definitive treatment of compound hand injuries cannot be adequately covered. Therefore, only two types of injuries will be considered in detail: tendon division and finger amputation, because of their common occurrence.

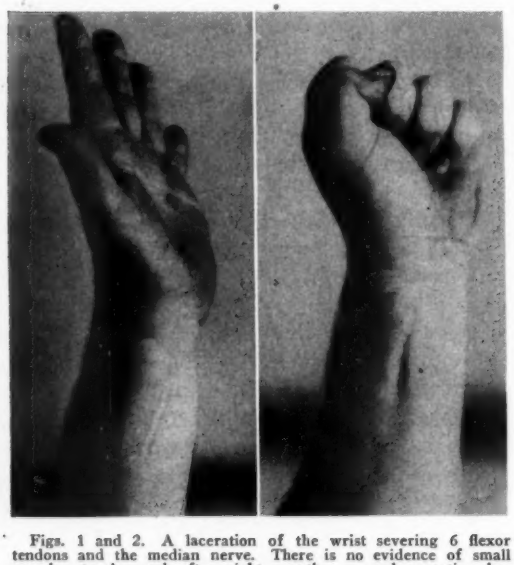
Tendon Division

Division of a tendon or tendons is a common feature of hand and finger lacerations and deserves careful attention because of its great economic importance and possible later functional impairment of hand usage. Tendon sutures require operating room attention.

1. Flexor tendons are commonly divided in the flexor sheaths and in the wrist. When divided in the flexor or fibro-osseous sheath, they need special attention because of the limited space available in the sheath.

The presence of the sublimis and profundus

flexor tendons in the flexor tendon sheath creates a problem not found elsewhere in tendon suture. If both tendons are severed, there will be insufficient room in the sheath for two repaired tendons. The result, if attempted, will usually result in failure. One method of overcoming this complication is to sever the sublimis tendon as high and low as it can be reached, repairing the profundus.



Figs. 1 and 2. A laceration of the wrist severing 6 flexor tendons and the median nerve. There is no evidence of small muscle atrophy and after eight months, normal sensation has returned.

Frequently, in tendon suture, it is necessary to enlarge the incision in one or both directions and this is done by making incisions parallel with, and not across, flexor creases; and in the fingers, on the lateral margin of the phalanges, never across a joint.

To function, a tendon must glide. Without this ability, it is useless and to preserve this all-important characteristic, a gliding surface must be fostered in the repair. A tendon is essentially an isolationist for it cannot be united to everything in the neighborhood and be anything except a functional failure.

Divided flexor tendons in the palm below the flexor sheaths are more difficult to expose, but usually better results are obtained because of the elasticity of the surrounding tissues. In the palm, the digital nerves are usually injured with the tendon because of their proximity, and these nerves being so small, offer a poor prognosis for recovery.

The wrist is a common spot for tendon severance, but, fortunately, repair of them at this point usually gives good results. When many tendons are cut, a fine knowledge of the anatomy is necessary to correctly unite them. Division of the median nerve is a serious complication and may lead to atrophy of the thenar eminence as well as sensory disturbance to the first three fingers on their useful surfaces, especially the tips. Successful function following suture may result and in one case of complete median nerve division in the group of cases here reported there was complete recovery without atrophy or loss of sensation. Ulnar nerve division, if unsuccessfully repaired, is not as serious a handicap to the hand as median nerve loss.

2. The extensor tendons are less of a problem as to exposure, suture, and possible complications. The results are uniformly better. Since the lumbricals with the interossei muscles can extend the distal two phalanges, one must not overlook extensor tendon division.

Primary tendon suture is not always advisable. Wounds over twelve hours old when seen are seldom good material for tendon or nerve repair. If one cannot expect primary healing, tendon suture must not be done. Wound cleansing, etc., is carried out in an identical manner. The skin may be loosely united, if justifiable, and should primary union occur, secondary tendon suture is done in three weeks. If wound infection occurs, the same number of months should elapse.

Sulfonamid drugs are not used in wounds involving tendon or nerve suture because we learn from the experimental work of Mason and Allen[2] that the hemorrhagic exudate formed about the repaired tendon lessens its strength. Sulfonamid drugs, however, may be used in compound wounds without tendon suture or nerve suture.

Following tendon repair, the wound is always closed without drainage. Splinting is quite important. Plaster of Paris is used in the form of molded splints to obtain rest, so essential to the treatment of all wounds and, particularly, rest of the affected muscles whose tendons are sutured. For flexor tendon injuries, the wrist and metacarpophalangeal joint is maintained in flexion for three to four weeks. Movement of the finger tips can be encouraged after one week and in the second phalanx in two weeks. Early move-

ment in the wrist and metacarpophalangeal joint is not encouraged because the tendon is not healed before three weeks and movement only invites trouble. The most valuable physiotherapeutic measures, following the removal of splints, are the hot water soaks that the patient may use at leisure at his home and a small object such as a rubber ball that he can carry in his hand and squeeze to encourage finger movement and reduce stiffness rapidly.

Amputation

The most frequent catastrophe to befall the hand is finger amputation. It is one of the common emergencies encountered in the physician's office. It is a minor injury from which there is a lifetime handicap of some degree and always a disfigurement.

Because of the importance of the fingers, it is essential to treat these amputations in such a way that the loss already present is not increased either by ill advised removal of more tissue or by subsequent infection and necrosis. Upon the intelligence of the primary treatment depends the final result. As in the case of tendon sutures, these amputations should be performed in an operating room.

Morphine sedation is usually given as soon as possible even though the pain may not be great. In the operating room, the neighboring skin is thoroughly cleansed and procain is infiltrated into the proximal phalanx. The wound is then cleansed and during this process, the method of repair can be formulated. One of four possible procedures is applicable:

1. A free full thickness skin graft may be applied to the amputation stump.
2. The stump may be sutured without further shortening of the finger.
3. The bone or other structures may be shortened to form the classical amputation stump.
4. No suture or repair may be undertaken.

1. Amputation through the finger tip is quite receptive to a free whole thickness skin graft. The donor site may be chosen from the forearm, abdomen, back or thigh. The removal of the graft and the finger repair can be conveniently done with infiltration anesthesia.

Koch[1] has recently summarized well the principles governing the choice of grafts, emphasizing (1) the nutritional requirements of the graft and (2) the surface requirement of the part to be grafted as the two essential factors to consider. Thinner grafts, such as the Thiersch, will always be more successful because they grow readily, requiring less nutrition. However, they do not stand trauma and break down easily. They are not suitable for the hand.

Thicker grafts such as whole free thickness grafts require an excellent nutritional surface and will not "take" unless they have sufficient nutriment. On the other hand, they can stand the trauma and abuse necessary on the hand and finger surfaces. If subcutaneous tissue, as well, is necessary for the repair, a pedunculated type graft would be necessary.

In the application of immediate whole free thickness graft, an important surgical postulate is fulfilled: namely, early closure of the wound. To use this type of graft, the recipient site must have adequate blood supply and it must have sufficient tissue to protect the nerves, tendons, blood vessels and bones.

Several writers have described their success in using immediate thick grafts to hand and finger injuries; particularly amputations. Zadik[3] reports twenty-seven finger tip amputations grafted, ten by flap grafts and seventeen with free thick grafts with the conclusion that flap grafts should be used on the thumb where tendon is exposed or where more than one-third of the terminal phalanx is missing. Free thick grafts may be used in other instances in his experience.

In our own experience, we have found the field of free full thickness graft applicable to the thumb and the majority of terminal phalanx amputations. Especially receptive to these grafts are those amputations which are oblique, in which a large portion of the anterior surface of the finger has been removed. If a graft were not used on such a case, considerable shortening would be necessary to obtain wound closure.

In performing the graft, a piece the size and shape of the defect is removed by sharp scalpel dissection, leaving the under surface absolutely free of fat. It is sutured in place with interrupted fine dermal sutures under slight but definite tension. A pressure dressing is applied and not changed for ten days. Occasionally, the outer bandage is changed.

2. The second method of treating amputation stumps is by wound closure without shortening of the remainder of the finger. Many amputations

which, on first appearance, seem to need considerable shortening, can on careful planning and use of existing remaining soft tissue and skin be closed with a satisfactory result and no shortening.

3. The classical finger amputation, with its neat, rounded, well padded stump with suture line posterior, away from the pressure-bearing area, is too well known to amplify. It is the standard toward which one must strive, but without unwarranted sacrifice of finger length.

4. The fourth possibility of treating finger tip amputations is by cleansing and sterile dressings. They require from five to ten weeks to heal spontaneously, but the final results are satisfactory. This method was, and still is, the proper one if free thick graft is not applied for any reason. There is no needless sacrifice of finger length.

Automobile door amputations are frequently of the type which may be treated by this latter method, particularly in children.

The last 400 consecutive hand injuries treated by the author previous to June 1, 1943, were analyzed.

HAND INJURIES	*Cases*
Severe injuries	108
Skin, fascia or muscle	56
Tendons severed (28 tendons)	12
Compound fractures	10
Compound dislocation	1
Amputations (38 amputations)	31
Medium nerve division (counted with tendon cases)	1

Of the more severe skin and superficial tissue lacerations, the fingers and hands were approximately equally divided between the right and left hands. Tendon injuries were equally divided between flexors and extensors. Compound fractures favor in frequency neither hand or any finger particularly. Amputations happened oftener on the left hand by three to two. Two-thirds of the amputations occurred in the index and middle fingers, the index finger in our series being slightly more frequently involved. Almost one-half of all finger amputations occurred in the left index and middle fingers. The other three fingers were about equally involved, the thumb slightly oftener than the fourth and fifth fingers.

Summary

1. Hand injuries constitute a large percentage of industrial, farm and home accidents and all possible means should be utilized to prevent these disabling wounds through safety reminders and instructions.

At the present time, conversion of a contaminated wound to a clean wound by complete cleansing with mild soap, water and saline is the simplest method to insure primary healing.

3. Tendon injuries require thorough anatomical knowledge in their diagnosis and treatment, those occurring in the flexor tendons of the fingers and palm offering the greatest problem for obtaining a successful end-result.

4. Major nerve division requires great care in wound treatment and nerve suture. Complete recovery may follow suture of a median nerve severance and one such case is reported.

5. Whole thickness skin graft should be used more often in treating finger amputations as a means of preserving finger length and function.

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INDUSTRIAL INJURIES CAUSE GREAT LOSSES IN MANPOWER

Losses in manpower because of industrial injuries are higher now than they have been for many years, Max D. Kossoris, chief of the Industrial Hazards Division of the Bureau of Labor Statistics, stated at the National Safety Congress in Chicago.

"Considering the trends during the last two years, the further drafting of men out of our industries, and the expected growth in our industrial employment, the trend of injuries can be expected to continue upwards," Mr. Kossoris predicted.

During the last few years, total work injuries have increased more rapidly than employment. Mr. Kossoris said that from 1940 to 1942 average employment increased by 19 per cent, but work injuries rose 23 per cent.

The combination of "green" personnel, congestion and less adequate supervision increases the problem which safety engineers must handle.—*Science News Letter*, January 8, 1944.

INVOLVEMENT OF THE HEART IN TULAREMIA

Report of Two Cases

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PATHOLOGICAL and clinical reports of tularemic cardiac involvement are infrequent. However, a review of the literature reveals reports of pericarditis due to B. tularense. Coronary artery changes are suggested by other observations. Myocarditis is proved by microscopic studies. One report suggests the possibility of endocarditis due to B. tularense infection. A review of the literature and two additional cases of tularemic pericarditis are presented.

Pericarditis

In a disease in which pleuro-pulmonary inflammation is relatively common, one should expect to encounter pericarditis quite frequently. However, in reviewing case reports of pleuro-pulmonary tularemia, one is struck by the infrequency of any mention of findings suggestive of this condition. In a recent article Jager and Ransmeier[4] report a case of constrictive pericarditis due to tularemia. In the literature and from unpublished reports they were able to find only nine other cases in which tularemic pericarditis was present. Of those reported, six survived and of these one developed signs of constrictive pericarditis. The two patients reported below recovered completely, thus making the incidence of constrictive pericarditis in cases reported to date, one in eight (12.5 per cent). Further observations may reveal that tularemia is an important factor in the causation of constrictive pericarditis.

Coronary Disease

Foshay[2,3] has called attention to the development of angina pectoris after recovery from tularemia in patients who previously were free of cardiac complaints. He has cited several cases of sudden death, suggestive of coronary occlusion, in patients who had no previous symptoms of coronary disease. The possibility of endothelial proliferation in the coronary arteries, in addition to the added burden on the heart due to the infectious process, is suggested by Foshay as the explanation for these developments. Kitzmiller[5] reported a case of tularemia in a man thirty-six years of age, who died suddenly of coronary occlusion when he was apparently recovering from a tularemic infection. Death occurred on the twenty-eighth day of the illness. Necropsy revealed extensive atheromatous plaques and partial occlusion of the smaller branches of the coronary arteries. A large healed infarct and a fresh hemorrhagic infarct with necrosis were found in the left ventricle. Almost all the coronary arteries showed intimal thickening, and hyalinized connective tissue in the media and adventitia layers. A small fibrinous thrombus was found in one sclerotic artery. Obviously, all these changes could not be related to the acute infectious process, but it is possible that acute changes superimposed on the pre-existing vascular disease contributed to the death of the patient.

Myocardium

There are many reports of myocardial changes due to tularemia. The reader is referred to Saphir's recent review of myocarditis for a summary of the subject.[6] The most frequent findings include cloudy swelling, and flabbiness on gross examination. Microscopic examination reveals loss of striations, fragmentation of the muscle fibers, infiltrations of round cells about the vessels and between the muscle bundles. Such changes certainly could be expected to reduce the efficiency of an already damaged heart and increase the seriousness of the disease in patients so afflicted, as has been pointed out by Foshay.[2]

Endocardium

There are no definite cases of endocardial involvement due to B. tularense recorded in the literature. However, Sugden[7] reported a case of ulcero-glandular tularemia in which the heart was said to be normal prior to the onset of the disease. During the course of the illness cardiac enlargement and aortic and mitral systolic and diastolic murmurs were observed. These findings together with findings characteristic of congestive heart failure persisted for twenty months. At that time the patient died following a sudden

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attack of abdominal pain. Autopsy revealed an embolus in the mesenteric artery with gangrene of the bowel supplied by the involved artery. The heart was hypertrophied. The mitral valve was fibrotic and showed evidence of healed ulcerated lesions. A few rough vegetative processes were present. The aortic valve showed similar but less marked changes. Stenosis and insufficiency of both valves were present. Unfortunately bacteriologic proof of the presence of B. tularense in the involved valves is not given. However, the evidence is at least suggestive that the tularemic infection may have involved a previously normal heart.

Reports of Cases

Reports are submitted of two cases of tularemic pericarditis.

Case 1.—Reported through the kindness of Ruth E. Boynton, M.D., director, Students Health Service, University of Minnesota.

F. B. a twenty-three-year-old graduate student in the bacteriology department of the University of Minnesota noted malaise, fever, chills, and cough beginning January 27, 1938. He stated that he had been working in the laboratory with B. tularense and that recently an infected rabbit had sneezed in his face.

Physical examination on February 1, 1938, revealed the following significant findings temperature 102°F., pulse 100, respiration 22. Chest: slight decrease of respiratory movement on the left. Normal resonance bilaterally. A few fine crepitant rales were heard in the sixth intercostal space to the left of the sternum. There were no ulcers nor enlarged lymph nodes noted.

Laboratory findings: Urine negative. Hemoglobin 98 per cent. White blood cells numbered 10,300 per cu. mm. with 82 per cent neutrophiles.

Bacteriologic studies: on February 9, 1938, B. tularense were recovered from animals which had been injected with the patients blood. Serum agglutination tests for B. tularense were reported as follows: February 3, 1938, absent; February 8, 1938, positive in titre 1:160; February 11, 1938, positive in titre 1:320. Culture of the pleural fluid revealed B. tularense.

Chest x-ray showed nothing significant on February 1, 1938.

Course: The patient became very toxic; temperature was of the septic type varying from 99 to 104.6° F. The pulse rate varied from 85 to 120. Physical signs suggestive of pneumonia in left lower lobe were noted on February 4, 1938; x-ray of the chest confirmed this. On February 8, 1938, a pleural friction rub was heard in the left axilla and on February 9, 1938, a pericardial friction rub was heard over the apical area of the heart. On February 8, 1938, an electrocardiogram showed sinus tachycardia and slight slurring of QRS complexes. Chest x-ray later showed a massive pleural effusion on the left. Foshay's anti-tularemic serum was given in daily doses of 30 c.c. on February 9, 11, 12, and 13. Symptomatic measures were also employed. The patient very gradually improved; the temperature slowly fell to normal levels. He was ready for discharge on March 27, 1938. He recovered completely and resumed normal activity.

Case 2.—T. B., a thirty-seven-year-old farmer, came to the University of Minnesota Hospitals on April 25, 1942. He stated that in November, 1941, he had become seriously ill following a cold. Cough, fever and pain in the chest were the main complaints. His condition had required hospitalization at the local hospital for six weeks and he was irrational for twenty-five days of his hospital stay. A diagnosis of pneumonia with pleural effusion had been made by the attending physician and fluid had been aspirated from his right pleural cavity on two occasions. Following his discharge from the local hospital in December, 1941, he noted continued weakness and exertional dyspnea; and during February and March of 1942 began to note dependent edema. It was because of these symptoms that he came to the University Hospitals. Inquiry revealed that approximately two weeks before the onset of his illness in November, 1941, he had cleaned two squirrels. No ulcer nor lymphadenopathy had appeared.

Physical examination on April 25, 1942, revealed the following significant findings: Temperature 101 F.; pulse 110; respiration 24. Chest: heart and trachea displaced to the left. Signs of fluid in right pleural cavity, reaching up to level of seventh rib posteriorly. Crepitant rales were heard above this area. A pleural friction rub was heard over the right lung anteriorly. Heart: a soft systolic murmur was heard along the left sternal border in the third and fourth intercostal spaces.

Laboratory studies: Urine, negative; hemoglobin 10.5 Gms. per 100 c.c. of blood; WBC 6,350 per cu. mm.; neutrophiles 72 per cent; lymphocytes 26 per cent; monocytes 2 per cent. Agglutination for B. tularense was positive in a dilution of 1:2560 in the blood; and 1:320 in the pleural fluid. B. tularense was recovered from guinea pigs injected with the pleural fluid. The pleural fluid contained 775 WBC per cu. mm. Of these 97 per cent were lymphocytes. Chest x-ray on April 26, 1942, showed a large pleural effusion on the right with displacement of the heart to the left. A small amount of fluid was noted in the left pleural cavity; an infiltrative process was present in the left upper lung field. An electrocardiogram taken on April 30, 1942, showed a diphasic T wave with cove plane contour in lead 1, flattening of T waves in leads 2 and 3, and a negative T wave in lead 4 F.

On May 7, 1942, a pericardial friction rub was heard along the left sternal border. This increased in intensity for one week and then gradually decreased until it was no longer audible about five weeks later. Temperature gradually returned to normal and the x-ray findings resolved. He was discharged from the hospital on July 2, 1942, and instructed to restrict his activities. When last seen in January, 1944, he stated that he was doing all his own farm work without distress

of any kind. Roentgen kymogram showed no evidence of constrictive pericarditis. The electrocardiogram was entirely normal.

Comment

Tularemic and tuberculous infections have several characteristics in common: Descriptions of pleuro-pulmonary tularemia[1] have pointed out the resemblance of the pulmonary lesions to those of tuberculosis. The long period during which B. tularense may be dormant after apparent clinical recovery has been noted by Foshay.[3] Constrictive pericarditis may be a complication of both diseases. Further observations must be made to determine how often tularemia, especially of the pleuro-pulmonary type, is followed by constrictive pericarditis. It is possible that some of the cases of constrictive pericarditis, in which the etiology has not been established, are due to B. tularense infection.

Summary

1. A brief review of the subject of tularemic cardiac involvement is presented.

2. Two cases of tularemic pericarditis are reported.

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CESAREAN SECTIONS

A Ten-Year Statistical and Comparative Study from the Ancker Hospital*

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THE cesarean operation was originally devised to save lives! Indeed, this is still its purpose, but though great strides have been made in its technical performance, the abuse of this operation stands as the most serious obstacle to improvement in maternal and fetal mortality statistics. These abuses are well known to most of us and the literature is emphatic in their condemnation. All physicians, hospitals, and clinics should therefore take inventory from time to time to see where improvement can be made in their particular cesarean series. The results, good or bad, should be a subject for criticism and scrutiny of the medical groups involved. Thus, many hospitals and clinics have benefited from such an analysis by establishing rigid and strict rules governing the conduct of cesarean cases. This seems to be the first logical step in the eradication of the cesarean problem.

The stimulus for this present ten-year analysis and comparative study arose, peculiarly enough, because of the "lack of cesarean sections" being performed at the Ancker Hospital. In other words, the incidence seemed to be so low in comparison to other clinics and hospitals that some explanation or justification was necessary. At the Ancker Hospital a cesarean section is really considered an "important event." In fact, many interns fail to see one performed while on their six weeks obstetrical service even though approximately 150 mothers are delivered during this interval of time.

In the following report, then, our experience with the cesarean section from 1933 to 1943 is summarized and the American literature for the last five years (1938-1943) reviewed for comparative statistics. A portion of this data overlaps a previous ten-year analysis (1927-1936) prepared and published by A. G. Schulze[23] of the Ancker obstetrical department.

Incidence of Cesarean Section

At the Ancker Hospital there were only forty-five sections performed in ten years from a total of 11,195 deliveries, a numerical incidence of one in 249 or 0.4 per cent. That this low incidence is not merely accidental or coincidental for this particular ten-year period is proved by the fact that

*A charitable institution, the obstetrical service of which is supervised by obstetrical specialists practicing in Saint Paul, Minnesota.

TABLE I

Hospitals	Sections	Incidence (Percentage)	Incidence (Numerical)	Maternal Mortality (Percentage)	Fetal Mortality (Percentage)	Maternal Morbidity (Percentage)
Ancker	45	0.4	1 in 249	4.4	8.8	35.5
Morrisania	—	0.8	1 in 129	10.7	—	—
Sedgwick County	—	1.6	1 in 63	4.7	8.9	25.0
St. Louis Maternity	—	1.8	1 in 56	2.96	8.2	—
Mount Vernon (1930-35)	—	2.1	1 in 48	10.5	—	—
Community (1935-40)	—	3.1	1 in 32	3.7	—	—
New York City Hospitals	—	2.4	1 in 42	2.7	—	—
New York Infirmary for Women and Children	—	2.4	1 in 42	2.6	11.7	—
Harper Hospital	338	2.5	1 in 40	2.36	8.5	—
New Jersey (1939)	—	2.6	1 in 38	3.0	—	—
Hospitals (1940)	—	2.7	1 in 38	2.7	—	—
National Report	—	3.2	1 in 32	4.69	—	—
Massachusetts Hospitals	4,298	3.4	1 in 29	—	8.8	—
Methodist Hospital of Brooklyn	1,066	3.9	1 in 26	3.18	5.2	50.0
Evanston Hospital	340	4.05	1 in 24	0.88	9.7	—
Elizabeth Steel Magee Hospital	1,322	5.23	1 in 19	3.02	8.0	—
Chicago Lying-In	1,000	5.5	1 in 18	0.80	—	43.8
Johns Hopkins	1,333	5.2 (W)	1 in 19 (W)	2.80	—	—
	—	5.9 (N)	1 in 16 (N)	2.80	—	—
Cedars of Lebanon	507	8.35	1 in 12	1.57	5.8	29.0 (Cl)
	—	—	—	—	—	36.7 (Ce)
Iowa Statistics (1930-32)	—	—	—	7.0	16.4	—
(1933-35)	—	—	—	5.4	12.1	—
University of Minnesota Hospitals	72	—	—	2.7	—	—

it was only 0.31 per cent for the 1927-1936 period. No reports in the American literature of the past five years have a comparably low incidence. Thus, the range was 0.8 per cent at the Morrisania City Hospital in the City of New York to 8.35 per cent at the Cedars of Lebanon Hospital in Los Angeles, or two to twenty-one times the Ancker incidence. This difference becomes more evident when one realizes that a cesarean section is performed once every twelve deliveries at the Cedars of Lebanon hospital while at the Ancker only once in 249 deliveries. To explain this extreme variation certain factors must be considered. Obviously the difference cannot be entirely explained on the basis of racial and individual characteristics. Thus, the incidence in other Saint Paul and Minneapolis hospitals is considerably higher than the Ancker indicating that perhaps some other factors are responsible. Certainly, it is illogical to believe that nature is so imperfect as to necessitate an abdominal delivery in one out of every twelve mothers! However, in studying the incidence chart below, it is obvious that man has found it necessary to intervene in an alarming number of cases.

Table I, made up from the statistics of numerous hospitals throughout the United States, includes the incidence of cesarean sections, the fetal and maternal mortality, and the maternal morbidity when given.

Maternal Mortality

If one analyzes Table I it becomes obvious that the cesarean operation is attended with considerable risk to the mother. For instance, an incidence of 8.35 per cent and a maternal mortality of 1.57 per cent as reported by the Cedars of Lebanon Hospital means that out of every 200 sections three mothers are lost or approximately five times the expected mortality rate of spontaneous deliveries. If, then, the high mortality rates of some clinics exist, the risk becomes even more obvious. Thus, a national survey listed the mortality rate of 4.69 per cent. For comparison and emphasis the following observations are interesting. If, for instance, a comparison is made between the Morrisania hospital with its 0.8 per cent incidence and 10.7 per cent mortality and the Cedars of Lebanon hospital with its 8.35 per cent incidence and 1.57 per cent mortality, one and a half more maternal deaths occur at the latter hospital from cesarean sections in spite of its low mortality rate. If Ancker hospital with its 0.4 per cent incidence and 4.4 per cent mortality is similarly compared with the Cedars of Lebanon hospital, it is interestingly true that seven and a half times more mothers are lost at the latter hospital from cesarean sections. The Chicago Lying-in Hospital reported the lowest cesarean mortality rate in this survey but because of its high incidence of 5.5 per cent or one section in every eighteen deliveries, it loses two and one-half times more mothers from cesarean section than the Ancker. Though many more similar comparisons could be made, almost invariably the hospitals with the lowest cesarean incidence report the lowest total maternal mortality rates over a long period of time.

Seeley,[24] reporting on 338 consecutive cases of cesarean section in Detroit, concluded that this operation in Detroit carried no more than the usual clean surgical case risk. However, this mortality rate is still too high in comparison to the expected mortality of spontaneous deliveries. Arnot[2] says, "it is not fair to a woman to deliver her by an abdominal method which puts four to five times the risk on her life that vaginal delivery does unless there is urgent or good reason for abdominal delivery." The reduction in cesarean mortality to a clean surgical case expectancy is commendable provided the operation is limited to purely surgical indications. In other words, the cesarean operation should not be the panacea for all obstetrical evils and used by the untrained physician as a refuge for his inadequate obstetrical training and judgment.

It seems important in a statistical analysis of this type to consider also the total maternal and fetal mortality in an honest attempt to ascertain whether the hospitals reporting a low cesarean incidence have a correspondingly high general mortality. The question must be answered whether the failure to do a particular section caused an increase in the total maternal and fetal mortality. This aspect of the problem is seldom considered in the literature but certainly a hospital with a low section incidence and high general mortality has certain questions to answer. With this in mind the Ancker Hospital records are of interest.

In the ten-year period there were a total of thirty-three deaths on the obstetrical service for an uncorrected maternal mortality of 0.29 per cent or 2.9 per 1,000 deliveries. The main offender was puerperal sepsis with eleven cases or 33.3 per cent. However, five of these cases occurred in 1933 during an epidemic of puerperal sepsis in which many more were infected but recovered. All of these patients died within the period of February 13 to March 16, 1933. Three of these cases showed streptococcus viridans in the peritoneal culture at post mortem. Six other sepsis deaths occurred from 1933 to 1943 but it is an interesting fact that every one of these cases except one (a simple breech extraction) was a spontaneous normal labor and delivery. Postmortem examination of the patient delivering by breech showed a chronic tubo-ovarian abscess from which the sepsis apparently originated. Three other patients died from absolutely unrelated causes. Thus, one died the day following delivery from chronic myelogenous leukemia, one from military tuberculosis forty-six days post partum, and the other from bronchopneumonia and lung abscesses six hours after delivery. There were three pulmonary embolism deaths (two following operative deliveries) and two anesthetic deaths (one from asphyxia and aspiration on the table and the other from bilateral edema and bronchopneumonia one day post partum). The remaining deaths were as follows: eclampsia, four cases; placenta praevia with hemorrhage, two cases; shock and hemorrhage, five cases; cesarean deaths, two cases; and undeterminate causes, one case. This latter case may have been

an amniotic fluid embolism since the patient died a respiratory death on the delivery table without anesthesia. The patients dying from shock and hemorrhage were as follows: one from Duhrssen's incisions and craniotomy on a dead baby; one from atonia following a long second stage terminated by easy low forceps; one from atonia following a normal twin delivery; one from unsuccessful forceps, version and extraction, laceration of the pelvic floor and hematoma of the vulva (delivery had been attempted in the home before arrival at the hospital); and one from cervical and vaginal lacerations and atony following midforceps. It is doubtful whether cesarean section would have been a better procedure in any of the above cases for even in the patient requiring craniotomy the problem was not one of disproportion but of failure of cervical dilatation. The corrected maternal mortality was 0.19 per cent or 1.9 per 1,000 deliveries since the five epidemic sepsis deaths, the unrelated deaths, the two anesthetic deaths, and the undeterminate death can be subtracted.

Analysis of the two cesarean deaths is of interest for several important problems present themselves. One patient was an elderly obese primipara with adequate pelvic measurements but with a large baby. After approximately twelve hours of labor with little or no progress a section was performed. She died on the second postoperative day from an apparent cardiac failure. This case emphasizes beautifully the marked risk of any surgery in an obese individual. The other patient, who had undergone a previous cesarean section, was admitted with an upper respiratory infection in labor. Section was delayed until fifteen hours after rupture of the membranes and then performed under general anesthetic. This patient died on the first postoperative day from pneumonia and peritonitis. Several of the dangers of cesarean section and the errors in handling are emphasized in this second case. First, a low cervical section was performed upon a patient having had vaginal examination and ruptured membranes for fifteen hours. Perhaps an extraperitoneal approach or porro section would have saved this patient. The next danger emphasized is that this patient had to be submitted to another cesarean section in spite of an upper respiratory infection because of a previous section. Even though local anesthesia may have been safer there is still considerable risk in operating on any patient with an infection such as an upper respiratory infection. This particular point is not often considered in the literature but certainly must present a real problem when the cesarean incidence is as high as often reported. Thus, there is most certainly a definite delayed cesarean mortality which must be added to the original mortality rates. The danger of subsequent rupture of the uterus is likewise a real and not infrequent possibility. In our series we encountered one case of ruptured uterus in a patient having had a previous section but fortunately this patient was in the hospital at the time of rupture whereupon immediate operation resulted favorably for the mother. Burkons[3] studied forty-five cases of ruptured uteri and found that eighteen of the forty-five occurred in previous section cases with a 11 per cent maternal mortality and 72 per cent fetal mortality. Falls[9] showed that the outstanding cause of maternal mortality in cesarean section cases was ruptured uterus. Rickards,[21] quoting Eardley Holland, states that 4 per cent cesarean scars give way during subsequent labor or pregnancy.

As to the treatment of the pregnant woman on whom a previous section has been performed there is considerable difference of opinion. Seeley,[24] summariziing 338 consecutive cases of cesarean section at the Harper Hospital in Detroit, believes in the dictum "once a section, always a section." Lazard[15] of the Cedars of Lebanon hospital also follows the above dictum. Certainly, most obstetricians agree that any abdominal pain in the third trimester of pregnancy is a danger signal in a woman previously sectioned. These patients need constant and careful study since not uncommonly rupture of a previous scar will occur long before active labor sets in. Many clinics and authorities, however, follow an attitude of watchful expectancy unless the first section was performed for disproportion. A clean postoperative recovery from the first cesarean section usually, but not conclusively, indicates a good firm scar. At the Ancker hospital we have followed a course of watchful waiting except in cases of obvious disproportion. However, our series is so small as to be indeterminate.

Almost all writers feel that low cervical scar offers greater security against future rupture. Holland, however, as quoted by Rickards,[21] doubts whether this is true. Plass,[20] on the contrary, feels that the low cervical operation gives

much greater guarantee against rupture. It is true, nevertheless, that rupture of the uterus does occur occasionally in the low cervical scar and that this operation cannot be considered an absolute guarantee against this accident.

The one conclusion that can be made is that the fewer sections performed needlessly the less worry one encounters in subsequent labors and deliveries. Thus, Gordan[11] found that out of 110 cases of puerperal deaths in 1939 in the Borough of Brooklyn, twenty-seven were due to cesarean section. Eisaman and Cook[7] state that 13.2 per cent of all the maternal deaths are either attributable to or follow abdominal delivery and that 7 to 10 per cent of all section cases end in tragedy.

Fetal Mortality

The fetal mortality for cesarean sections performed at the Ancker hospital was 8.8 per cent. From Table I it is obvious that this operation offers little as far as fetal salvage is concerned since the mortality in those hospitals reporting ranged from 4.9 to 16.4 per cent. In contrast with these figures the total fetal mortality at the Ancker hospital over the ten-year period, including all viable infants born alive and all stillborn infants, was 29.2 per thousand or 2.92 per cent. If the nonviable fetuses are added to this figure the gross fetal mortality is 44.6 per thousand or 4.46 per cent which is below the lowest mortality given for cesarean section babies. Certainly, in our series, delivery from below, in spite of our extremely low cesarean incidence, did not increase the fetal mortality. Soule[11] states that cephalopelvic disproportion does not occur more frequently today than before and that many cases are being sectioned while previously they were delivered successfully from below.

Great errors are often made in estimating the size of the baby. Thus, Eisaman and Cook[7] state that 33 per cent of all babies delivered by elective cesarean section weighed less than 3000 grams and 10 per cent weighed less than 2500 grams. Soule[26] reports two deaths occurring in elective cases where the babies were too premature to survive. Irving[12] summarizes the problem as follows: "When cesarean section is performed for the sole purpose of obtaining a live infant it does not compete with normal delivery and low forceps for in 12,371 delivered thus through the pelvis the total fetal mortality, including stillbirth and neonatal deaths, was only 3.4 per cent."

Maternal Morbidity

That cesarean section carries with it unavoidable complications is evident from analyzing our small series of forty-five sections. Thus, the following complications occurred coincidently or as a result of cesarean section: severe atelectasis, one case; pneumonia, three cases; acute psychosis, one case thromboplebitis, two cases; urinary tract infection, one case; wound infection, two cases; cardiac failure (fatal), one case; purulent peritonitis (fatal), one case; mastidis, one case; severe anemia, several cases; acute mastoiditis with draining ear, one case; ruptured uterus in subsequent labor, one case; and indeterminate infection in one case. At Ancker hospital the gross morbidity rate was 35.5 per cent with an average postoperative hospital stay of 14.3 days. Ryder[22] reported a puerperal morbidity of 13.5 per cent in elective section cases and 25.5 per cent in those in labor. Arnold[1] found his morbidity to be 11.5 per cent in elective cases compared to 26 per cent in labor cases. He also discovered that the morbidity was 4.8 times as great after the membranes were ruptured as when intact. In 1066 cesarean operations at the Methodist Hospital in Brooklyn, Matthews and Acken[19] report a gross maternal morbidity just over 50 per cent while Daily[5] reported a 43.8 per cent morbidity in 1000 cases at the Chicago Lying-in Hospital. Other morbidity figures are: Sedgwick County in Kansas, 25 per cent; Cedars of Lebanon, 29 per cent for classical and 36.7 per cent for cervical sections; and a national survey with a morbidity of 37.29 per cent. Wound infections alone occurred in 20 per cent of the cases performed at the Morrisania City hospital according to Tamis and Klein.[28] At the Ancker hospital twelve patients were in labor at the time of cesarean section but only four had ruptured membranes. All of these four cases had membranes ruptured less than six hours except one for fifteen hours with a fatal outcome. In comparison to the high morbidity of cesarean cases it is of interest to note that the morbidity in 1007 consecutive cases delivered at the Ancker hospital from July, 1940 to July, 1941 was only 4.75 per cent.

Classical Versus Low Cervical Section

In the ten-year period at Ancker hospital there were thirty classical, thirteen low cervical, and two porro sections performed. No extraperitoneal operations were attempted. The two fatal

cases occurred in the low cervical group but in one case the death was unrelated to the type of section while in the other an extraperitoneal or porro section should have been performed. From our limited experience no definite conclusion can be made as to the best type of cesarean operation. Most writers prefer the low cervical approach using the transverse uterine incision. However, Manahan, Connally, and Eastman[18] believe that prior to onset of labor, classical section will give as good immediate results provided the contra-indications are rigidly observed. Ryder[22] claimed that the maternal mortality was two times as high in low cervical as in the classical operation with a higher morbidity in the former also. He states that the classical operation is easier, quicker, causes less bleeding, and carries less danger to the surrounding tissues. Elston and Elston[8] analyzed 127 consecutive cases in which the classical section was performed with a loss of five mothers. However, only one of these was due to sepsis. They encountered no sequellae such as bladder complications as occur occasionally in the low type of operation. Soule[25] reported a mortality of 2.46 per cent in the classical operation compared to 7.04 per cent in the longitudinal low cervical and 0.0 per cent in the transverse low cervical operation. Cosgrove[4] believes that the cervical operation results in a smoother convalescence and claims there is less danger of rupture of the scar in future pregnancies. Danforth and Burge[6] performed 340 consecutive cervical sections with a mortality on only 0.88 per cent. Jennings[14] stated that the morbidity rate fell in almost direct proportion to the rise in number of low flap operations. At the Ancker hospital the morbidity in low sections was 23 per cent compared to 33.3 per cent in the classical and 100 per cent in the two porro cases. However, if the two patients who died after the cervical operation are added the morbidity is 40 per cent in the cervical operation compared to 33.3 per cent in the classical. In conclusion, then, it may be said that the low cervical operation has received considerable favor in the last few years but that the classical approach in selected cases is probably as advantageous.

Indications for Operation

Ancker hospital seems to be unique in that cephalo-pelvic disproportion is not the main indication for performing cesarean sections. This factor probably explains the low incidence of abdominal deliveries. Thus, disproportion accounted for only eleven cases or 22.2 per cent of all the sections performed. Placenta previa was the indication for section in nineteen cases or 42.1 per cent of which twelve were central or complete and seven partial or marginal. The other indications were as follows: ablatio placenta, five cases or 11.1 per cent; obstructing tumors, three cases or 6.6 per cent; medical reasons, three cases or 6.6 per cent; abnormal presentations, two cases or 4.4 per cent (one a face presentation having had a previous section and one a transverse presentation); carcinoma of the cervix, one case or 2.2 per cent; and fetal distress, one case or 2.2 per cent. Every other hospital in the literature reported disproportion or previous section as the predominant indication for cesarean section. Thus, at Johns Hopkins Hospital 44.8 per cent of all sections are done for disproportion. This indication likewise accounts for cesarean section in 44 per cent of the cases at the small Mt. Vernon Hospital, 47 per cent at the Chicago Lying-in Hospital, 41 per cent at the Morrisania City Hospital, 55 per cent at the Methodist Hospital of Brooklyn, 34.2 per cent at the St. Louis Maternity Hospital, 71.5 per cent at the Elizabeth Steel Magee Hospital, and 75 per cent at the Cedars of Lebanon Hospital. From the foregoing figures on disproportion it would appear that Ancker Hospital should operate more frequently for this indication to stay in line with the other institutions. However, as has been emphasized in this report, the Ancker maternal and fetal mortality and morbidity rates have not been high and we feel that our conservative attitude has instead enhanced our record. We have felt that a test of labor is indicated in cases of questionable disproportion despite severe criticism by some writers and teachers. Thus, McKelvey[16] is emphatic in stating that "test of labor is a dangerous and useless form of clinical guessing and has no more place in clinical obstetrics." Roentgenographic interpretation has, in other words, according to him, been perfected so highly that in each case it can be determined before labor whether delivery will occur spontaneously without damage to mother or infant. That this ideal has not been accomplished at *any* institution is obvious, however, and many good authorities still feel that "clinical judgment" is a valuable possession. Certainly, any pelvic abnormality

requires thorough roentgenographic interpretation but the final evaluation still should depend upon experience and judgement of the clinician. MacKenzie[17] states that special roentgenographic examination is helpful but that it can never replace good, sound clinical judgment. Arnot[2] believes that a test of labor should be given with moderate contraction of the pelvis and states that it is not fair to a woman to place a risk five times as great as a pelvic delivery unless there is an urgent reason for so doing. Danforth and Burge[6] have not found the test of labor to alter the result provided the patient is managed with scrupulous asepsis and they do not hesitate to operate after many hours of labor. Soule[26] considers any operation performed within six hours of the onset of labor as elective. Jackson,[13] on the contrary, feels that the greatest single factor in reducing the dangers of cesarean section is its election before any contra-indications have been permitted to develop and believes there should be fewer tests of labor. Lazard[15] also states that too conservative an attitude results in too late operating with increased mortality in the best of surroundings. Forward[10] gives the following contra-indications to abdominal delivery: (1) if there has been vaginal examinations; (2) ruptured membranes for more than four to six hours; (3) if operative attempts have been made from below. Cosgrove[4] states that favorable elective conditions include: (1) complete lack of contamination; (2) freedom from clinical evidence of infection; (3) duration of labor not in excess of twenty-four hours; and (4) duration of labor not in excess of eight to twelve hours with ruptured membranes.

The fact that our incidence of cesarean section was the highest for placenta praevia (42.1 per cent) does not mean that we are routinely performing sections for this condition. There has been a tendency, however, to perform this operation increasingly more for this complication. Thus, Soule[27] states that generally there is a greater place for section in placenta praevia than was customarily reserved for it. McKelvey,[16] however, states that in placenta praevia with extensive blood loss the shock creates a very poor fetal outlook and that such circumstances are best handled from below irrespective of the type of placenta praevia. Most obstetricians, however, feel that cesarean section is indicated at least in all central or complete types with live babies and that the marginal or partial types can be handled well from below.

Summary and Conclusions

1. The cesarean section incidence at Ancker Hospital for the ten-year period (1933 to 1943) was only 0.4 per cent. The highest incidence reported in this survey is 8.35 per cent.

2. In a five-year review of the literature the maternal mortality of cesarean section cases varied from 0.8 per cent to 10.7 per cent. At Ancker Hospital the mortality was 4.4 per cent.

3. The fetal mortality in section cases varied in the literature from 4.9 to 16.4 per cent. At the Ancker Hospital it was 8.8 per cent.

4. The uncorrected total maternal mortality of all deliveries at the Ancker Hospital was 0.29 per cent or 2.29 per 1,000 deliveries. The corrected mortality was 0.19 per cent or 1.9 per 1000 deliveries.

5. The fetal mortality at Ancker Hospital for all deliveries was 2.92 per cent or 29.2 per 1000 deliveries. This included all viable stillbirths and neonatal deaths. If the nonviable fetuses are added the fetal mortality was 4.46 per cent or 44.6 per 1,000.

6. Cesarean section is accompanied with many complications with the average morbidity somewhere around 35 to 50 per cent. At Ancker it was 35.5 per cent.

7. The gross maternal morbidity for all types of deliveries at Ancker Hospital is somewhere around 5 per cent, being 4.75 per cent in 1,007 deliveries from July, 1940, to July, 1941.

8. The question whether to perform the low or classical section has not been settled. In selected cases the classical seems to be simpler and probably as safe.

9. Cephalo-pelvic disproportion is the predominant indication given for cesarean section throughout the country while at Ancker only 22.2 per cent of all sections were performed because of this complication. Placenta previa accounted for 42.1 per cent of the Ancker cesarean sections. Previous cesarean sections accounted for much of the high incidence reported in this survey.

10. We believe there is a definite place for a "test of labor," for this will eliminate many unnecessary cesarean sections and the risks to the patient they involve.

11. The abuse of the cesarean section stands

as the greatest single factor to be attacked in reducing maternal and fetal mortality statistics.

12. We feel that our conservative attitude in regard to the performance of cesarean section has paid dividends in reducing maternal and fetal mortality rates and in preventing the delayed mortality due to ruptured uteri, intestinal obstruction, and other complications.

NOTE: Since writing this paper, 395 consecutive mothers were delivered at the Ancker Hospital without a cesarean section or maternal death.

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A FIVE-YEAR SURVEY OF CESAREAN SECTIONS IN RAMSEY COUNTY, MINNESOTA

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THIS report presents a statistical analysis of the cesarean sections which have been performed in Ramsey County, Minnesota, during the past five years, 1938 to 1942, inclusive. This has never been done in Minnesota for any unit greater than one hospital. It will enable comparison of incidence, mortality, and indications used in other parts of the country. Perhaps, also, this report with the limitations consequent to the available material will encourage more faithful reports for the hospital records. No attempt will be made herein to identify the ten hospitals of Ramsey County with a particular fraction of the statistics. These hospitals are Bethesda, Midway, Miller, Mounds Park, Northern Pacific, St. John's, St. Joseph's, St. Luke's, West Side General, and Ancker Hospitals.

Dr. Skinner, a former intern at Ancker Hospital, Saint Paul, is now with the Army Air Forces in Nashville, Tennessee.

TABLE I
(1938-1942, inclusive)

	No.	Per Cent
Hospital Deliveries	28,868	
Hospital Live Births	28,183	97.6
Hospital Stillbirths	693	2.4
Hospital Maternal Deaths	36	0.12
County Live Births	30,943	
County Stillbirths	753	

In this five-year period there were 28,868 deliveries in the hospitals of the county with a maternal mortality of 0.12 per cent and a stillbirth rate of 2.4 per cent. Four hundred and thirty-

TABLE II

	1938	1939	1940	1941	1942	Total	Per Cent
Cesarean sections	64	83	78	91	118	434	
Emergency	12	19	19	17	23	90	21
Elective	50	60	55	71	92	328	76
Not reported	2	4	4	3	3	16	3
Type of operation							
Classical	27	38	18	40	49	172	40
Low	18	21	30	29	33	131	30
Extraperitoneal	3	0	1	1	0	5	1
Porro	16	2	3	1	3	25	6
Not reported	0	22	26	20	33	101	23
In labor	28	28	36	28	35	155	36
Not in labor	32	52	42	59	82	267	62
Not reported	4	3	0	4	1	12	3
In labor							
Membranes ruptured	9	11	13	9	12	54	12
Membranes intact	11	13	19	17	18	78	18
Not reported	8	4	4	2	5	23	5
Anesthetic							
Local	1	1	1	1	4	8	2
General	60	76	71	79	90	376	87
Local and General	3	5	2	9	20	39	9
Spinal	0	1	2	2	4	9	2
Not reported	0	0	2	0	0	2	

four of the deliveries were accomplished by cesarean section, an incidence of 1.5 per cent (Tables I and II). The incidence by hospitals varied from 2.8 to 0.5 per cent. One hospital reporting for 1942 listed more deliveries than the sum of the live and stillbirths. Less than one-fourth of the operations are classified as emergency sections. Few of the records studied stated the type, so "emrgency" section was arbitrarily assigned to those cases in which the operation took place more than six hours following the onset of labor or because of an acute surgical emergency. Hemorrhage, as from placenta previa or premature separation of the placenta, did not constitute such a classification unless of such a degree as to require immediate transfusion and surgery.

The most popular operative procedure is seen to be the classical approach, although the unfortunately high number of unreported cases obviates statistical analysis. The incidence of the Porro type (5.8 per cent) is rather high. It may be noted that three-fifths of the Porro operations were done in the year in which there were the fewest cesarean sections. A 1 per cent incidence of the extraperitoneal procedures is about the same as in the state survey of Massachusetts.[4]

Apparently spinal anesthesia does not find favor here as it was used in approximately 2 per cent of the operations.

TABLE III. INDICATIONS FOR CESAREAN SECTION

	No.	Per Cent
Disproportion	122	28 } 45
Dystocia	73	17 }
Placenta previa	87	20
Central	25	
Partial	31	
Not stated	31	
Toxemia	45	10
Premature separation of placenta	22	5
Previous section	15	3
Obstructing tumor	8	
Associated medical condition	7	
Eclampsia	6	
Malposition of baby	6	
Prematurity and/or large baby	5	
By request or for sterilization	3	
Ruptured uterus	3	
Previous plastic operation	2	
Anomaly vestigial cervix—double uterus	2	
Carcinoma of cervix	1	
Other	25	
Not stated	3	

Thirty-six per cent of the patients were in labor when surgery was performed, but only 12 per cent had ruptured membranes when the section was done.

Table III lists the indications for the cesarean sections in the last five years. Disproportion-dystocia heads the list, as is found in most large series. Those women with disproportion who were given a test of labor have been classified under dystocia. It was noted that in a significant number of charts there was no mention of the usual pelvic measurements, x-ray, consultation, or test of labor. In many cases it is undoubtedly a fact that such points were considered and recorded in the doctor's office or elsewhere, but for the sake of the hospital and the physicians themselves

TABLE IV

	1938	1939	1940	1941	1942	Total	Per Cent
Maternal deaths	0	0	2	2	4	8	1.84
Emergency	0	0	2	0	1	3	38
Elective	0	0	0	2	3	5	63
In labor	0	0	2	0	1	3	38
Not in labor	0	0	0	2	3	5	63
Membranes ruptured	0	0	0	0	0	0	0
Membranes intact	0	0	2	1	3	6	75
Not reported	0	0	0	1	1	2	25

these might be copied on the hospital charts. The varieties of placenta previa are second on the list. Previous section is sixth. This should be qualified by stating that no less than forty-one of the cases listed under disproportion have had one or more previous sections.

In three cases there was a mistake in the pre-operative diagnosis. However, the pre-operative impression is the one used in Table III. The missed diagnoses consisted in mistaking premature separation and submucous fibroma for placenta previa. One case of contracted pelvis was found to have a spondylolisthesis.

No indication or pre-operative diagnosis was stated for three of the sections. However, a forty-five-year-old primipara was one of these.

Some of the miscellaneous indications are worthy of note, e.g., Huntington's chorea, hip ankylosis and spastic paralysis, previous birth of erythroblastotic fetus, previous Manchester operation. One case which has received a good deal of attention is that of a woman who was sectioned after having three spastic babies. The baby by section was normal. One case presented an incarcerated hernia which contained a uterine myoma. Chronic cervicitis, uterine or cervical scarring, previous third degree laceration plus the patient's demand accounted for others. Separation of sacroiliac and symphysis pubis, premature rupture of the membranes, coccygeal neuralgia, and "coincidental appendectomy" were the pre-operative diagnoses of four cases. Most of the remaining indications were multiple, a combination of medical and obstetrical conditions or two or more obstetrical conditions. In these cases no emphasis or choice was recorded to enable classification in Table III.

Eight maternal deaths in this series gives an uncorrected maternal mortality of 1.84 per cent compared with the national rate of 4.69 per cent as compiled from 30 reports.[1] The highest mortality from one hospital in the present series was 15 per cent. The obstetrical conditions prevailing at the time of section of those mothers who died are presented in Table IV. It is interesting to note the low number for those in labor and those with ruptured membranes.

TABLE V. CAUSES OF CESAREAN SECTION DEATHS

Acute cardiac failure	1
Pulmonary emboli	1
Generalized peritonitis	1
Acute pulmonary edema	1
Pneumonia	1
Ascites, paralytic ileus, hydrothorax	1
Pulmonary infarctions, bronchopneumonia	1
Unknown	1
Total	8

Table V lists the causes of death in the fatal cases. Five of the eight showed pulmonary complications of one sort or another. Death from acute cardiac failure followed a sixteen-hour labor in a 218-pound woman in her first pregnancy whose cervix never dilated beyond 2 cm. Acute lung edema was the cause of death twenty-four hours after operation in a woman who had had edema, dyspnea, and orthopnea for two and one-half months. Sterilization had been advised previously. Generalized purulent peritonitis associated with perforation of the uterus were the post-mortem findings on one whose indications were dystocia and face presentation with a 12-hour labor. A woman operated upon for ruptured uterus died on the sixteenth postoperative day of ascites, ileus, and left hydrothorax. The death of uncertain origin was on the fifth postoperative day in a woman who had been in labor six and one-half hours. The indications were prematurely separated placenta, placenta previa, and ruptured uterus. No previa was present at operation. It is interesting to see that one of the smaller hospitals with perhaps a less desirable reputation had a high number of specialist consultations and no section deaths.

Fetal mortality and neonatal deaths are recorded in Table VI. The stillbirth rate is 6.2 per cent. The percentage is 11.2 when neonatal deaths are included.

Table VII enables comparison with a few of the larger series for the past several years. Certain general conclusions may be drawn from this. The incidence of cesarean section in Ramsey County is distinctly below the average. The maternal mortality ranks very favorably among the

TABLE VI

	1938	1939	1940	1941	1942	Total	Per Cent
Cesarean Sections	64	83	78	91	118	434	1.5
Maternal Deaths	0	0	2	2	4	8	1.84
Live Births	62	76	71	84	115	408	92.9
Stillbirths	1	8	8	4	6	27	6.2
Neonatal Deaths	1	7	4	3	7	22	5.0
Not stated	1	0	0	3	0	4	0.9

reports. The fetal mortality in Ramsey County appears high although it is important that our figures are uncorrected and include neonatal deaths as well as stillbirths. In many of the reports listed definition of the figures was not made. Hence, reliable conclusions are not possible. Although comparison of indications is difficult to make, suffice it to say, our figures are similar to those of other parts of the country.

Conclusions

It appears from the incidence, indications, and types of surgical procedures during the five-year period that in Ramsey County the approach to the problem is conservative. The low maternal mortality is praiseworthy. The fetal mortality is perhaps high but comparison is not reliable as our figures are gross uncorrected statistics. The long range viewpoint covering gross mortality and morbidity is the only definite means of determining the relative values of conservative and radical approach, but that is not within the scope of this statistical report. The large number of cases detailed lends significance to the figures and percentages given.

For the benefit of hospital records and comparative statistics it would be helpful if the charts in the private hospitals were more complete.

Summary

A survey of cesarean sections in Ramsey County during the five-year period 1938-42 is presented.

The incidence of section is 1.5 per cent and the maternal mortality is 1.84 per cent, figures which are low when compared with other large series. The total uncorrected fetal mortality is probably a little high.

Classical section under general anesthesia was the method of choice during this period.

TABLE VII

City	No. Sections	Incidence	Mortality	Fetal Mortality
National Survey[1]	15,768 ('31-'39)	2.55%	4.69%	8.88%
Baltimore[5]	750 ('32-'41)	5+	1.7	
Brooklyn[9]	1,066 ('20-'37)	3.9	3.18	5.2
Chicago[3]	1,000 ('31-'38)	5.5	0.8	6.7
Dallas[1]	102 ('31-'39)	1.5	1.96	5.88
Los Angeles[7]	507	8.35	1.57	5.8
Massachusetts[4]	11,030 ('37-'41)	3.3	2.46	8.9
Mt. Vernon, N. Y.[8]	107 ('36-'40)	3.1	3.7	9.0
New Orleans[6]	1,108 ('27-'36)	2.08	5.9	10.8
New York[12]	112 ('29-'37)	0.8	10.7	
Philadelphia[10]	1,322 ('32-'42)	5.8	1.96	
St. Louis[11]	173 ('32-'37)	2.3	0.57	5.8
Ramsey Co., Minn.	434 ('38-42')	1.5	1.84	11.2

The indications in decreasing order are disproportion, placenta previa, toxemia, premature separation of the placenta, and previous section.

We appreciate the coöperation of the private hospitals in allowing us to review the individual charts concerned.

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CLINICAL-PATHOLOGICAL CONFERENCE

MINNEAPOLIS GENERAL HOSPITAL

J. B. Arey, M.D., Pathologist

Presentation of a Case

DR. PETERSON: The case is that of a nineteen-year-old white female who was admitted to the Minneapolis General Hospital the morning of December 31, 1943. The history obtained from the mother is as follows: The patient was in good health until January, 1943, at which time she acted as a blood donor. Following this she fatigued easily and her color was poor. However, she attempted to give blood again two to three months later, but was rejected because of a low blood pressure. In October, 1943, the patient sustained a small cut on her arm which subsequently became infected. This was treated at the Out-patient Department of the University Hospital by means of a "white powder." About two weeks after this treatment, the mother noted swelling of the right side of the face, not associated with redness or fever. Because of this she visited her physician the latter part of November, 1943, who noted a pimple inside her nose on the affected side. She was treated with sulfathiazole, receiving about 45 tablets during two to three weeks, following which the swelling subsided. About the middle of December, 1943, the patient complained of burning of her eyes, the conjunctivæ became inflamed and the lids turned black and blue.

DR. AREY: Was this during the course of sulfathiazole therapy or shortly after the treatment?

DR. PETERSON: It was shortly after treatment had been stopped. It was considered to be an allergic skin condition, and she was told to avoid soap and cosmetics.

The present illness began four days prior to admission, at which time she complained of a sore throat. This increased the following day, at which time generalized aching and repeated vomiting was also noted. Her physician advised warm milk and repeated doses of aspirin, which the patient was unable to retain. The following afternoon her temperature was 102 degrees. The posterior pharynx showed multiple greyish-white spots. Although this did not appear typical of a diphtheritic inflammation, a culture was taken and sulfathiazole, grains 7½ every four hours, was prescribed. Inasmuch as she was unable to take anything by mouth because of the severe sore throat, the mother administered the sulfathiazole by rectum. It was estimated that she received a total of 10 grams of sulfathiazole from Tuesday until early Thursday morning. On Thursday morning the mother noted that the patient had repeated episodes of cyanosis, associated with deep breathing. She was seen by another psysician during the day, and at that time showed no evidence of laryngeal obstruction. At that time the throat culture was reported to be negative for diphtheria. During Thursday evening however, her condition became progressively worse, and she was sent by ambulance to Minneapolis General Hospital.

On admission to the Receiving Ward of Minneapolis General Hospital, the patient was moribund. Her respirations were very rapid and shallow. The chest was clear anteriorly, the pulse could not be felt, but the heart sounds could be faintly heard. Blood pressure could not be obtained. The skin was very dry, the lips and extremities very cyanotic. Oxygen, coramine and caffein were administered without avail, and the patient died shortly after admission. A white blood count prior to death showed 2650 cells per cubic millimeter, with no neutrophiles, 83 per cent lymphocytes and 17 per cent monocytes. The clinical impression was agranulocytosis, possibly secondary to sulfathiazole.

Autopsy

DR. AREY: At postmortem examination, approximately six hours after death, the following laboratory tests were obtained. The B.U.N. was 71 mg. per cent; creatinine 3.3 mg. per cent; CO_2 combining power 31 volumes per cent; blood sulfathiazole level 1.8 mg. per cent. No urine was present in the bladder, but material expressed from the pyramids of the kidney showed a number of casts and red blood cells, but no crystals. Blood culture was sterile. In addition to the aforementioned laboratory work, the following findings were present at postmortem. The lower pharynx was discolored. The ventricular folds of the larynx were markedly swollen, discolored and showed patches of exudate on their surfaces. A small membrane was present beneath the ventricular fold on one side. The ventricular slit was narrowed to a triangular-shaped opening with a base and altitude of 7 mm. This inflammatory edema of the larynx, with its resultant obstruction, was the immediate cause of death. Cultures of the larynx showed only staphylococci, nothing resembling diphtheria. These may have represented a contaminant. Smears of the bone marrow showed a maturation arrest at approximately the leukoblastic level. Considerable cytolysis was present in these smears. Sections of the bone marrow will be discussed by Dr. Schleicher. The remainder of the autopsy was essentially negative. There was no evidence of pneumonia or renal damage. We will now show the slides.

Microscopic section of the kidney shows no abnormalities. No crystals were noted grossly, and none are visible in the section. There is no evidence of tubular damage. Section of one of the ventricular folds shows a large part of the surface epithelium to have sloughed off. There is a massive edema with deposition of fibrin, and a large number of bacteria, apparently cocci, are present throughout the section, especially on the surface. Almost no inflammatory cells are present, and these few are exclusively mononuclear. Section of the liver shows no abnormalities. None of the organs—liver, spleen, bone marrow—showed any focal areas of necrosis, such as have been described with sulfonamide poisoning. Dr. Schleicher will now discuss the bone marrow.

DR. SCHLEICHER: This is a section of the femoral bone marrow. The bone marrow units were grossly of normal size. Here is a small area showing congested sinusoids filled with erythrocytes. There are a few erythroblastic isles and almost no myelogenesis. As you look at slide No. 1 under the microscope, you will notice that myelopoiesis has been arrested between the myeloblast and leukoblast stage. No mature neutrophiles are present. All the fatal cases I have studied to date (all on sulfathiozole) show this same picture: A leukopenia with terrific myeloid immaturity and arrest usually occurring between the tenth and twelfth day. It is advisable to study the bone marrow in all cases of leukopenia, especially when associated with sulfonamide treatment. The cases I have studied have all been on sulfathiazole. Massive crude liver therapy (5 c.c. daily dose, repeated) has been of value when myelogenesis is arrested at a metamyelo level. We have three cases that responded well to this treatment. Fresh blood may be given as an adjunct. When the arrest is at a leukoblastic level, as in the present case, we have to date had no satisfactory results with liver therapy and/or transfusions. These, however, should be tried.

DR. AREY: I would like to mention a few things, not only about this case, but about several of the toxic reactions following sulfonamide therapy. The final diagnoses in this case were inflammatory edema of the larynx and agranulocytosis. Although we have some circumstantial evidence incriminating sulfathiazole for the agranulocytosis in this case, we have no definite proof that it was responsible. The conjunctivitis mentioned following previous sulfonamide therapy, may or may not have represented a toxic manifestation of sulfonamide therapy. We know that following one toxic reaction to sulfonamides, another is apt to occur with resumption of therapy at a future date. However, the symptoms in this case apparently began with sore throat, vomiting, et cetera, prior to the final administration of sulfathiazole. The symptoms of primary agranulocytosis and agranulocytosis secondary to sulfonamide therapy are not unlike. Both start with pharyngitis, laryngitis and ulcerated lesions in the mouth and throat. Accordingly, although the present case may be used to warn of the dangers of sulfonamide therapy, we cannot prove that the agranulocytosis was secondary to sulfathiazole treatment. It may represent a primary agranulocytosis.

As regards the various signs of sulfonamide toxicity, a great variety of reactions may occur. These should be well known to everyone employing the drugs, so only some of the more frequent manifestations will be discussed.

Skin reactions following sulfonamide therapy are characterized by their pleomorphism. They may be urticarial, purpuric, morbilliform, erythematous, or may even appear as an exfoliative dermatitis. They usually appear after seven to nine days of administration of the drug, but may appear within twenty-four hours, usually following a previous sensitization. Skin reactions occur most frequently with sulfathiazole, less often with sulfapyridine and sulfadiazene.

Fever is a rather common sympton of sulfonamide toxicity. The onset may be associated with a chill and skin eruption. Care must be taken to differentiate the fever of the underlying infection from the fever brought about by sulfonamide toxicity, as the latter is a definite contraindication to further use of the drug. It is said to occur more frequently with sulfanilamide than with the other sulfonamides, but may occur with any.

The renal complications are extremely important. They may be divided into three types. (a) obstruction to the free passages of urine by sulfonamide crystals, (b) actual tubular damage, (c) obstruction to the free flow of urine by the products of hemolysis. Although hemoglobinuria has at times been reported as a result of the hemolytic anemia which may accompany sulfonamide toxicity, to date, no cases of uremia have been reported on this basis. That such an event may occur in the future is a distinct possibility. An adequate fluid intake and output is essential when sulfonamides are administered, and alkalinization of the urine by means of sodium bicarbonate may be of definite value in preventing precipitation of sulfonamide crystals.

Jaundice, if occurring during the first week of sulfonamide therapy, is said to be associated with an acute hemolytic anemia. In addition to hemolysis, however, such patients show signs of a toxic hepatitis, having an increased retention of bromsulfalein and urobilinoginuria.

The anemias associated with sulfonamide toxicity may be divided into the acute hemolytic and the slowly progressive. The latter very frequently occurs after two weeks of treatment, the former occurring earlier.

Agranulocytosis has already been discussed. These cases have a very poor prognosis, about 70 per cent dying within four to six days of the onset. Although leukopenia has been often seen with sulfadiazene, to date, I have seen no reports of a fatal agranulocytosis resulting from sulfadiazene therapy. That this will occur in the future is hardly to be doubted. It should be pointed out that leukopenia prior to the onset of

(Continued on Page 151)

HISTORY OF MEDICINE IN DODGE COUNTY

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(Continued from January issue)

Dr. Elias Wells Kellogg (1859-1923) was born in Roscoe, Illinois, on October 9, 1859, the son of Sylvanus Holbrook Kellogg and Sarah Loomis Kellogg.[338] His father was a native of Vermont, and his mother had been born in Michigan. The senior Kellogg was a Congregational minister who came to Renville County, Minnesota, in 1863 as a missionary to the Indians. The boy was reared at Lake Preston in Renville County, where he attended a Congregational mission school conducted by his mother. His lot was exceptionally hard. He had no stockings, but wore folded pieces of muslin to ward off the cold in the winter, and nothing at all on his feet in the summer. It was his task to fell and saw or split up timber near the school for use as firewood. After he had finished his studies at this school he taught school for a while in Renville County, and in 1880 enrolled in Carleton College at Northfield, Minnesota, from which he was graduated in June of 1885. He then began to study medicine at the Rush Medical College of Chicago, although he apparently was not a full-time student. In 1886 he obtained work as a member of a surveying crew of the old Minnesota and Northwestern Railway Company (now the Chicago and Great Western Railway Company), which at the time was constructing a line in Dodge County and other counties nearby. In February of 1887, as previously mentioned, he began to study medicine privately with Dr. James A. Garver of Dodge Center, whose assistant he was and whose relative by marriage he was to become. Doctor Kellogg remained in Dodge Center for about two years, and while he was there he was married to Miss Mary Estelle Westcott of Concord, whose father had come to Minnesota in 1857. Her mother was a daughter of Doctor Garver.

Doctor Kellogg had continued to attend the Rush Medical College of Chicago while he was associated with Doctor Garver, and in 1888 his professor of surgery at this school was the great Swiss surgeon, Nicholas Senn (1844-1908). Doctor Senn also served as Doctor Kellogg's preceptor. Doctor Kellogg was graduated from Rush in 1889. The sister[328] of Doctor Kellogg's widow reported that when Doctor Kellogg was graduated in 1889 he had no money and no suggestion as to where he might locate. He noticed an advertisement in a German-language newspaper of Milwaukee in which a pharmacist asked for a physician who would live in the rear of his pharmacy and send him prescriptions. Doctor Kellogg associated himself with this pharmacist, but the inducements that had been offered proved to be illusory. No patients came to him for a long time. Nevertheless, he resolved to remain in this particular location and to succeed, and succeed he did. By the year 1898, according to his sister-in-

law,[328] he was a relatively wealthy man. His position in his profession after that year seems to have been secure. It was said[328] that in the first eleven years of his practice in Milwaukee he delivered at least 2,800 infants.

Doctor Kellogg became professor of therapeutics in the old Wisconsin College of Physicians and Surgeons in Milwaukee, which was founded in 1894 and became extinct in 1912. He was a member of the American Academy of Medicine, the American Medical Association, the Wisconsin State Medical Society, the Milwaukee County Medical Society, and several others. He was a regular contributor to the *Journal of the American Medical Association,* and such time as he could spare outside his professional activities he gave to the Young Men's Christian Association of Wisconsin, of which he was a director at his death, and to other organizations. He was deacon of the Hanover Street Congregational Church of Milwaukee, and a member of the Masonic fraternity. When he died the *Milwaukee Journal*[329] observed:

> The death of Dr. Kellogg ended a career of the highest type in professional, public and private life, and takes from Milwaukee not only one of its able medical men but a personality which was an aid and inspiration to the many with whom he came in contact during his long residence and practice here.
>
> A wide circle of friends feel deeply the physician's death. Intensely interested in the advancement of his profession, one to whom an appeal for assistance or charity never failed of response; a public spirited citizen who worked efficiently for the public good; a lover of youth and a friend to it, all of this was accomplished by Dr. Kellogg quietly and unostentatiously, his friends pointed out.

Dr. Kellogg died at his residence in Milwaukee on May 19, 1923, of renal disease and complications.[328]

Dr. Samuel Houston Van Cleve (1853-1912) was of distinguished parentage. His father was the well-known military figure of the War of the Rebellion and Republican politician, Major General Horatio P. Van Cleve (1809-1891) of Minneapolis.[333] His grandfather, Dr. John Van Cleve, was a surgeon of note in New Jersey, of a Dutch family which had settled on Long Island in 1653. Doctor Van Cleve's mother, Mrs. Charlotte Ouisconsin Clark Van Cleve (1819-1907) was not less notable than her husband. She was a descendant of William Churchill Houston (1745 or 1746-1788), a member of the Continental Congress and a delegate to the Constitutional Convention at Philadelphia in 1787.[334] She was born near the mouth of the Wisconsin River in 1819. Her parents were accompanying the first United States soldiers to occupy what later became Fort Snelling. She is remembered for her valued autobiography, *Three Score Years and Ten,* published in Minneapolis in 1888, copies of which still command a respectable price. She also compiled *The Martyrs of Walhalla, or Early Missionary Annals of Northern Minnesota and Dakota,* published in 1890 by the Presbyterian Board of Publication and Sabbath-School Work in Philadelphia. She occasionally visited her son while he was in practice in Mantorville,[335] and sometimes spoke there.

Doctor Van Cleve was born on May 21, 1853, at Ann Arbor, Michigan, where his father at the time was engaged in farming and some sort of civil engineering. In 1856 the family moved to Long Prairie, Minnesota, where the elder Van Cleve endeavored to raise livestock. Doctor Van Cleve was graduated from the College of Physicians and Surgeons of New York City in 1880, and was licensed to practice medicine in Minnesota on November 26, 1883, receiving License No. 408.[40] He practiced his profession at Duluth for a few years, and served as city physician of Minneapolis from 1885 to 1887.[336] In November

of 1888 he came to Mantorville in Dodge County to inquire into the practice of Dr. John Flood (1850-1918).[141] Doctor Flood left Mantorville to go to the Rush Medical College of Chicago, as previously set forth herein, and Doctor Van Cleve conducted his practice for him while he was gone.[337] An interesting reference to Doctor Van Cleve was made by one Dodge County newspaper[338] in 1890.

> Dr. Van Cleve left Tuesday for Rochester, where he goes to take charge of Dr. Mayo's [*sic*] practice during the week, while the Mayo's are in the East.

When Doctor Flood finished his work at Rush and returned to Mantorville, Doctor Van Cleve bought his practice and remained at Mantorville until the summer of 1900. He was elected first vice president of the Southern Minnesota Medical Association in 1894, and during part of his stay in Mantorville he was coroner of Dodge County. In 1900 he removed to Saint Cloud, and his practice in Mantorville was taken over by Dr. Edward I. Brown (1869-), now of Saint Paul.

Doctor Van Cleve became a member of the Minnesota State Medical Association in 1903, while he was living in Saint Cloud. In 1904 he settled in Minneapolis, where he opened an office at 36 Chute Building on East Hennepin Avenue. He occupied the old Van Cleve family home at 603 Fifth Street Southeast. On February 5, 1906, he was elected to membership in the Hennepin County Medical Society,[339] and about a year later he moved his office to 400 Central Avenue in Minneapolis, retaining his residential address. He died in Minneapolis on November 19, 1912, at the age of fifty-nine years.[340]

Dr. Guy Philander Corwin (1855-1929) spent much of his early life in Dodge County. He was born in Barry County, Michigan, on March 23, 1855.[341] He received his primary education in the public schools, and this was augmented by three years of instruction in the old Wesleyan Methodist seminary in Wasioja in Dodge County. He then read medicine for a while with Dr. John Flood (1850-1918) of Mantorville as his preceptor, and also taught school. He was married to Miss Emma G. Garrison of Wasioja on October 2, 1879. Their infant daughter, Olive Belle Corwin (1883-1888) is buried in Wildwood Cemetery at Wasioja. Doctor Corwin attended the old Minnesota Hospital College of Minneapolis, but was graduated from the University of Minnesota College of Medicine and Surgery in 1889, since the Minneapolis institution was merged with the University of Minnesota in 1888. Doubtless Doctor Flood had urged young Corwin to attend the Minneapolis Hospital College, for Doctor Flood owned stock in the college.

Previous to his graduation from the University of Minnesota Doctor Corwin had served as resident physician at the Minneapolis City Hospital under the famous Dr. James Henry Dunn (1853-1904), "one of the most eminent surgeons of the northwest,"[342] who was Minneapolis city physician in 1887 and 1888, having succeeded Dr. Samuel H. Van Cleve (1853-1912), in that post.[336]

Ward E. Corwin,[341] son of Doctor Corwin, reported that as city physician his father discovered a patient in the southeast river flats of Minneapolis who was a victim of leprosy (probably *spedalskhed)* in 1887, and he added that the discovery elicited considerable attention at the time. It has been shown,[25] however, that Dr. William H. Caine (1854-1902) of Stillwater discovered a leper in Washington County in 1881, and that Dr. Alexander J. Stone (1845-1910) discovered one in Saint Paul in 1883.[342]

Dr. Corwin practiced medicine for a short while in Wasioja after his graduation from medical school in 1889, but it is recorded[40] that in July of 1889 he failed to pass the examination of the Minnesota State Board of Medical Examiners. Doctor Corwin's son[341] reported that Doctor Corwin moved to Augusta, Wisconsin, in the latter part of 1890, and it is known that he never again applied for licensure in Minnesota. James Springsted,[343] who operated a drug store in Dodge Center from about 1880 to 1910, declared that he had filled Doctor Corwin's prescriptions while the physician practiced at Wasioja, and said that Doctor Corwin delivered several babies while he was in that village. Moreland[67] corroborated the statement that Doctor Corwin practiced medicine while he was in Wasioja, although Ward E. Corwin[341] did not believe that this was so. Evidence to support the contention of Springsted and Moreland appeared in a Wasioja item in the *Dodge Center Record*[344] in 1898: "Dr. Corwin, late of Augusta, Wis., is spending a little time here now. The doctor has many friends who are glad to welcome him in our midst again."

In about 1898 Doctor Corwin moved to California because of his failing health, and there he practiced in various towns, the last being Los Angeles. He retired in 1917, and died at his son's ranch at Puente, California, on February 16, 1929, of gastric ulcer.[345].

Dr. Cornelius V. Lynde (1858-1926) was born in Vermont in 1858, the son of Mr. and Mrs. John Lynde.[330] He was graduated from the Hahnemann Medical College and Hospital of Chicago in 1883, and was licensed to practice medicine in Minnesota on December 23, 1886, under License No. 1298.[40] As previously mentioned, he came to West Concord in Dodge County from Faribault in August of 1890,[145] and in April of 1891 removed to Northfield.[146] He practiced in various towns, such as Parkers Prairie and Medford, and died of diabetes in an Owatonna hospital on November 27, 1926.[346, 347]

Dr. Charles Osborn Wright (1864-), as has been said, came to Kasson in the summer of 1891, buying the practice of Dr. John Flood (1850-1918) of that town, who was preparing to leave Dodge County.[148] Doctor Wright was born on a farm in Washington County, Minnesota, on May 26, 1864, the son of John Wright (1836-1919) and Hannah E. Stevens Wright (1833-1921). His father was a Yorkshireman who had come to Canada in 1844 with his parents and in 1851 had settled at Point Douglas, on the west side of the mouth of Lake Saint Croix, in what is now Washington County. Doctor Wright's mother was a native of Canada who had been brought to Cottage Grove, in Washington County, by her parents in 1850.

Doctor Wright attended country schools until he was sixteen years old, and at that age he entered Hastings High School. After he was graduated from this school he studied medicine with Dr. William Thorne[176] (1820-1908) of Hastings for about a year, and in 1887 enrolled in the old Minnesota Hospital College at Minneapolis. In 1888 this school was absorbed by the University of Minnesota, so that in 1890 Doctor Wright was graduated from the University of Minnesota College of Medicine and Surgery. He was licensed to practice medicine in Montana by special permit, obtained through the intervention of Dr. John F. Fulton (1859-1932) of Saint Paul, and during 1890 and part of 1891 he served as medical officer of a construction crew of the Northern Pacific Railway Company, which at the time was building a 125-mile line from Missoula, Montana, to Mullan, Idaho, along the Missoula River and through the Bitterroot range of the Rocky Mountains. When this line had been

completed Doctor Wright returned to Minnesota, where he was licensed to practice medicine on April 10, 1891, receiving License No. 163.[40] He then located in Kasson. At Kasson, Doctor Wright was married to Miss Nina Ruhberg of that town. On June 21, 1893, he was elected to membership in the Minnesota State Medical Society, at the twenty-fifth annual session of that body in Minneapolis.[348]

In the spring of 1898, as stated previously, Doctor Wright took a post-graduate course at the New York Polyclinic Medical School and Hospital,[162] and in the fall of that year he was back in Kasson. He left Kasson in September of 1898, going to Luverne in Rock County, where he is at the present writing (1943). There, in 1905 and 1906 he served as president of the city council, and in 1907, 1908, 1910, 1911, 1912, 1919, 1920 and 1921 he was mayor of Luverne. He has served as health officer of Luverne and of Rock County, coroner of Rock County, and since 1922 has been local surgeon for the Chicago, Minneapolis, Saint Paul and Omaha Railway Company.[148] It was said that he owned the first automobile to be used for business purposes in Luverne: a one-cylinder chain-drive machine. On October 1, 1915, at the forty-seventh annual session of the Minnesota State Medical Association, Doctor Wright was elected third vice president of that organization.[349] On April 1, 1940, in celebration of his fiftieth year in the practice of medicine, the Rotary Club of Luverne honored Doctor Wright at a special meeting, a report[350] of which follows:

> The fiftieth anniversary of Dr. C. O. Wright's entrance into the practice of medicine was observed Monday, April 1, 1940, by the Luverne Rotary Club, of which the doctor is a member. Dr. Wright received his "license" to practice medicine on April 1, 1890,* following his graduation from the medical school of the University of Minnesota, and immediately thereafter began practicing his profession in Montana, as a surgeon for the Northern Pacific Railroad then engaged in building its line west from Missoula. Dr. Wright has practiced in Luverne for forty-one years.
>
> A special program was prepared for the event, including a few appropriate songs and short talks by members of the club. The speakers paid tribute to the remarkably active and unselfish service rendered by Dr. Wright during his long residence in Luverne, both as a physician and a citizen who found his greatest happiness in rendering service to others and in aiding in the upbuilding of the community The talks were naturally interspersed with the recalling of amusing incidents at the expense of the doctor, who has been a life-long devotee of hunting, fishing, golf and other sports.

In October of 1941 **Dr. Frank French Clifford** (1863-) completed fifty years of service to the people of West Concord and the surrounding countryside, and he celebrated this achievement by retiring and moving to Rochester. Doctor Clifford was born in Stanton Township in Goodhue County on October 1, 1863. He was the son of Arthur T. Clifford, a native of Maine, and Sarah Ellis Clifford, a native of New York, who were said to have come to the city of Red Wing on October 10, 1855, and to have farmed in Stanton Township until 1893, in which year they moved to Cannon Falls.[270]

The boy was educated at the schools in Cannon Falls, and he spent two years in teaching school at Vasa before he began to read medicine with Dr. Alonzo T. Conley (1847-1920) of Cannon Falls. He next attended the State University of Iowa College of Medicine at Iowa City, from which he was graduated in 1885. He was licensed to practice medicine in Minnesota on October 16, 1885, receiving License No. 1113.[40] Throughout the winter of 1885-1886 Doctor Clifford practiced medicine at Northwood in Worth County,

*In Montana, not Minnesota.

Iowa, and in the spring of 1886 he located at LeCenter in Le Sueur County, Minnesota, where he remained until May of 1891. At LeCenter, in January of 1888, Doctor Clifford[351] reported, he was called to see a twelve-year-old boy who had suffered "a complete lateral luxation outward of both of the bones of the forearm, the head of the ulna being above the condyles of the humerus." He administered ether, and reduced the luxation without incident. He said[352] such a type of luxation was particularly rare, the only one of its kind he knew of having been reported by Nélaton.

In May of 1891 Doctor Clifford visited West Concord in Dodge County to determine whether or not he should locate there.[149] His decision was favorable, and by June of that year he was well settled in the village.[150] As the years went by he became one of the most influential citizens in West Concord. He dealt in real estate, was postmaster for six years, helped to organize the local telephone company, and was a partner in a drug store in the town. He was also county physician of Dodge County, health officer of West Concord, member of the village board of education, member and president of the village board and local surgeon for the Chicago and Great Western Railway Company. He has been a member of the Dodge County Medical Society, the Southern Minnesota Medical Association, the Minnesota State Medical Association and the American Medical Association; and of such fraternal organizations as the Masons, Odd Fellows and Modern Woodmen of America.

Dr. Carlos Lord Chambers (1858-1904) was born at Davis, Illinois, on April 12, 1858, the son of John W. Chambers and Nancy Lord Chambers,[212, 330] daughter of Judge Samuel Lord (1831-1880) of Mantorville. Dr. Chambers' parents had come to Mantorville in the sixties, bringing their infant son with them. His father was a traveling salesman for a carriage manufacturer, and is known to have conducted a furniture store in Kasson for a number of years. The young man was educated at Carleton College at Northfield, from which he was graduated in 1881.[212] He then entered the Rush Medical College of Chicago. He was graduated from this institution as a Doctor of Medicine in 1883. "Carl Chambers is now a full-fledged M.D.," the *Dodge County Republican*[352] observed in March of 1883. "He graduated from Rush Medical College."

Doctor Chambers practiced for a while in Beloit, Wisconsin, and then came to Minnesota, where he was licensed to practice medicine on November 12, 1885, by Certificate No. 1124.[40] He located at Canby, Minnesota, for some years, and on May 12, 1886, he was married to Miss Nellie Roe of Mantorville.[353] There is evidence[100] that Doctor Chambers was licensed to practice medicine in the Territory of Dakota on April 24, 1888, but the evidence was disputed by Grassick.[100] At about the first of the year 1892 Doctor Chambers returned to Kasson,[152] and from that time until his death he remained in that town. He was elected to membership in the Minnesota State Medical Society at that organization's twenty-fourth annual session at Saint Paul on June 15, 1892,[354] and he was also a member of the Southern Minnesota Medical Association, the American Medical Association, and for a few years, the Olmsted County Medical Society. He served as president of the Kasson Board of Education and was highly regarded as a successful practitioner and a public-spirited citizen.

Lord[1] contributed the following sketch of Doctor Chambers, who was his cousin:

. . . Carl practiced his profession for a few years at Canby, Minnesota and then took up his abode at Kasson where until his death we lived again in close and intimate friendship. He was master of his profession. He died at the age of 46 from the effects of a surgical operation performed to reunite a broken hip joint. While he did not live to an old age, no one in my acquaintance has crowded more of usefulness into three score years and ten than Carl did in 46.

In June of 1904 Doctor Chambers was thrown from his buggy while he was returning from a professional call in the country.[212, 355, 356] A fractured hip resulted. In October of 1904[357] it was reported that he had returned to his practice, but the fractured bone apparently did not unite satisfactorily. On November 30, 1904, Doctor Chambers was operated on at the Northwestern Hospital in Minneapolis, but to no avail. He died in that hospital on December 5, 1904.[212, 356, 358]

Of him a colleague in the Minnesota State Medical Association wrote:

He was a resolute, resourceful, and high-minded man who inspired immediate and lasting confidence. His professional career was one of ceaseless activity and untiring devotion to those who sought his help, never shirking a duty, slighting a patient, or sparing himself.

Dr. Louise Marie Gerber-Dietmeier (1865-1936) was born in Monroe, Green County, Wisconsin, on November 23, 1865,* the daughter of John and Magdalene Chakviarr Gerber.[40] Her mother and father soon moved to the Swiss colony of Berne† in Milton Township in Dodge County, where the young girl was reared. She attended and was graduated from the Kasson High School, and thereafter taught school for a while. Deciding to become a physician, she entered the University of Minnesota, and was graduated from the College of Medicine and Surgery of that institution in 1893. She was licensed to practice medicine and surgery in Minnesota on April 6, 1894, receiving License No. 413.[40] Soon after her graduation she came to West Concord in Dodge County. At West Concord she seems to have been well liked, and she became the friend of many a family in and outside the village. But it does not appear that Doctor Gerber-Dietmeier remained long in West Concord, for she was soon located in Ada, Minnesota, where she stayed for several years. In 1895 and 1896 she did postgraduate medical work at the New York Polyclinic Medical School and Hospital, and in 1898 she made an extensive tour of certain lands in Asia and visited the Hawaiian Islands. On her return she settled in Jasper, Minnesota, where she discovered a true leper. In 1910 Doctor Gerber-Dietmeier visited Europe, where she devoted much time to the study of medicine in various cities, and when she returned to Jasper she built a combination hospital and office building. Her keen interest in travel and subjects not ordinarily considered to be concerned with medicine was reflected in some of her talks before the Southwestern Minnesota Medical Society. On January 15, 1909, at Pipestone, for instance, she spoke before members of this society on "Christianity vs. Materialism Among Physicians,"[359] and on July 22, 1909, before the same society, she spoke on "Medical and Other Notes on a Trip to Hawaii and the Orient."[360]

On June 2, 1919, at Freeport, Illinois, Doctor Gerber-Dietmeier was married to Mr. Lewis Dietmeier. She lived and practiced medicine for years at Jasper, until, on May 8, 1936, she suffered a severe nervous breakdown. She died in

*This is the date of birth furnished to the authors by the Minnesota State Board of Medical Examiners (reference 40). Data supplied by the Minnesota State Board of Health (reference 330) would indicate that Doctor Gerber-Dietmeier was born on November 23, 1868. The latter date also was used in an obituary of Doctor Gerber-Dietmeier printed in the *Jasper Journal;* but the authors did not see the original version of this obituary.

†See: Heilbron, B. L.: Swiss Settlement in Minnesota. Minnesota History 8:174-175 (June) 1927.

Saint Peter on July 2, 1936, of croupous pneumonia, generalized arteriosclerosis and chronic cystitis.[40]

Dr. Eric Olonzo Giere (1868-1942) was born near Deerfield, in Dane County, Wisconsin, on April 10, 1868, the son of Ole Nelson Giere and Inger Himle Giere.[153] His father was a pioneer farmer of Dane County; both parents were born in Norway, where a great grandfather of Doctor Giere, Dr. Erik C. Himle, had been a physician at Voss.[153] At an early time Doctor Giere's parents moved to Dodge County, and the boy was educated in the public schools of Rock Dell Township in Olmsted County. His preparatory education was obtained at Saint Olaf College at Northfield, Minnesota, from which he was graduated in 1888. He also had attended Luther College at Decorah, Iowa. From 1888 to 1892 Doctor Giere was a student in the University of Minnesota College of Medicine and Surgery, from which he was graduated on June 2, 1892.[153] He served three months as an assistant physician at the Rochester State Hospital, and was licensed to practice medicine in Minnesota on October 7, 1892, receiving License No. 273.[40] In that month he settled in Madison, in Lac qui Parle County, where he remained until May of 1895 when he moved to Hayfield, where his brother, Joseph C. Giere (1873-1899), was operating a drug store and studying medicine. Doctor Giere himself said[153] that he settled in the town because of its proximity to the Mayo Clinic at Rochester. It is recorded[361] that on January 7, 1896, Doctor Giere was elected a trustee of the village of Hayfield. Doctor Giere left Hayfield in January of 1897 to return to Madison, where from 1901 to 1911 he was associated with Dr. Marcus Thrane (1874-). He became president of the council of Madison, health officer of the town, coroner and also county physician of Lac qui Parle County, and secretary and president of the Camp Release Medical Society.[153] Doctor Giere remained in Madison for seventeen years, during which he spent much time in postgraduate training in surgery, which was his primary interest for most of his life. In 1898 he attended the New York Polyclinic Medical School and Hospital and the New York Post-Graduate Medical School; in 1900 the Chicago Post-Graduate Medical School and the Illinois School of Electro-Therapeutics; in 1912 the Illinois Post-Graduate Medical School, and in 1913 the Tulane University of Louisiana School of Medicine.[153] He became a fellow of the American College of Surgeons when it was founded in 1914.

From January of 1914 to May of 1921 Doctor Giere practiced at Watertown, South Dakota, where he had been licensed to practice medicine on May 31, 1900.[72] There he was associated with Dr. Finn Koren (1873-) and Dr. Anders Einar Johnson (1871-), who had been with him at Madison, Minnesota. In 1914 he visited clinics in Oslo, Copenhagen, Berlin and London. At Watertown Doctor Giere served as chief of staff of the Lutheran Hospital, and he did much work for the War Department in 1917 and 1918 as an examining physician for prospective entrants into the army.

In May of 1921 Doctor Giere removed to Saint Paul, Minnesota, where he became chief of staff of the Saint Paul Hospital. In 1922 he took additional training in surgery at the Chicago Laboratory of Surgical Technic. In May of 1927 he moved to Minneapolis, where with his three sons he conducted the Giere Clinic in the Metropolitan Bank Building, and where he was chief of staff of Fairview Hospital. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association, as well as of the American College of Surgeons, as mentioned previously. Doctor Giere was married twice. His first wife was the former

Miss Anna Louise Williamson, a native of Goodhue County, Minnesota; and his second wife was the former Miss Anna Cecelia Nielson, a native of Madison, Wisconsin.

Late in December of 1941 Doctor Giere became ill, and he was taken to the Fairview Hospital in Minneapolis. He died there on February 12, 1942,[362] at the age of seventy-three years, and was buried in Roselawn Cemetery in Saint Paul.[363]

Dr. James McCrea (1863-1939) was born in Frankton, Ontario, Canada, on September 25, 1863, the son of James McCrea and Elizabeth Hamilton McCrea.[330] His father was a North of Ireland man, a physician who had been graduated from the University of Edinburgh, and his mother likewise was from the North of Ireland. The young man was educated at Saint Catherine's, Ontario, and was graduated from the Ottawa Normal School in 1885. His intention for some time had been to become a teacher. He taught school for a number of years, and finally decided that he would rather be a physician. He was graduated from the McGill University Faculty of Medicine in Montreal on April 5, 1894, and on July 10, 1894, was licensed to practice medicine in Minnesota.[40] In August of 1894 he was licensed to practice medicine in South Dakota,[72] and he located at Salem in that state. While he practiced in Salem he was married to Miss Emma Schneider, of Howard, South Dakota, on August 1, 1895.[154] In the fall of 1895 Doctor McCrea came to West Concord in Dodge County, as set forth previously, but he left in March of 1896, to move to Fulda in Murray County, where he remained until his death.[154] There he became president of the Citizens' State Bank, health officer of Fulda and a member of the town board of education. He was a member of the Southwestern Minnesota Medical Society, which he served as president, the Minnesota State Medical Association, and the American Medical Association.

Dr. McCrea died at Fulda on December 19, 1939, at the age of seventy-six years. At his death it was said[364] of him:

> Doctor McCrea had an extensive obstetrical practice and kept abreast of the times. His early practice was in the horse and buggy days when good roads were the exception. He was one of the incorporators of the Citizens State Bank and was active in its management since its incorporation in 1908.

(To be continued in the March issue)

References will appear at the conclusion of this article.

President's Letter

BACKING THE NEW COUNCIL

The North Central Conference held its second annual session at the Saint Paul Hotel last month and passed a resolution of endorsement to the new Council on Medical Service and Public Relations which should be of important assistance to that harassed body in the critical period ahead.

This action will be taken to the National Conference on Medical Service for further affirmation this month and, in view of the need for unity of purpose in the medical profession, Minnesota representatives will leave no stone unturned which will help to achieve a solid national backing for the Council.

In the meantime, it is highly significant that the North Central Conference, composed of representatives from Wisconsin, Minnesota, Iowa, North and South Dakota and Nebraska, which last year set in motion the resolutions which came to a head in the formation of the new Council by the American Medical Association in June, should this year have publicly expressed its confidence in the ability and purpose of that Council.

The fact is that the Council has been under fire from many quarters recently, first, because it has not yet established an office of information in Washington and, second, because its expressions of policy thus far have been deemed weak and disappointing by several medical associations. These associations have separately and in groups such as the Western Public Health League, made up of eleven western states, expressed an intention of taking the bull by the horns and forming their own sectional offices of information in Washington.

The fact that medical organizations in many parts of the country are alive to the menace in the present political situation and impatient of delay in taking action may well be regarded, in itself, as a healthy sign. But the North Central Conference, after examining the situation in the light of personal reports from Minnesota's member of the Council, Dr. A. W. Adson of Rochester, and from the newly engaged executive secretary, Dr. G. Lombard Kelly, dean of the University of Georgia medical school, found that impatience in this case is hardly justified.

Immediately after its creation last June, the Council set about forming its organization and securing an executive secretary, without whom nothing effective could be accomplished. It was a task which could not be done overnight, under any circumstances. In wartime, the difficulties proved to be enormous and the conference felt that the Council is to be congratulated on its progress and especially on having eventually secured a man of the exceptional qualifications of Dr. Kelly. It felt certain that the Council would now be able to carry forward the vigorous program so much desired by all medical associations in the country.

The resolution affirming this feeling is printed in the Medical Economics section of this issue of MINNESOTA MEDICINE and should be read by every member. It calls for the speedy establishment of an office of information in Washington but likewise expresses faith in the Council and disapproval of overlapping sectional representation at a time when, if ever, medicine needs harmony and singleness of purpose in its ranks.

E. Brandelson Jones

President, Minnesota State Medical Association.

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

IS KAISER'S PRE-PAYMENT MEDICAL PLAN GENERALLY APPLICABLE?

HENRY J. KAISER is an outstanding example of American genius as an organizer and high pressure executive. His accomplishments in shipbuilding are nothing less than marvelous. His pre-payment medical plan has been given some national publicity. Kaiser himself is said to be rather proud of the accomplishments of his pre-payment medical plan for that is just what it is. Fifty cents a week is a payroll deduction and a salaried corps of doctors supply the medical care in hospitals supported by the money collected.

The most recent publicity given the project is a book entitled "Kaiser Wakes the Doctors" by deKruif which appeared last year. We have not purchased the book nor read it, not being enthusiastic about the deKruif or his opinions about medicine. A lengthy review of the book with excerpts, however, appeared in *California and Western Medicine* last October, which gives a very satisfactory idea of the book and its misrepresentations.

In judging whether the Kaiser medical plan is actually a discovery and a solution of the cost of medical care as contended by deKruif, certain facts should be known.

The Kaiser plan provides for a fifty cents a week or $26 a year payroll deduction on employed individuals—well-paid individuals for the most part. It applies to a selected group to begin with as few chronic invalids are presumably employed. The overhead in collecting funds is minimal. No expense is involved in soliciting members of the insurance organization. Contributions by the hundred thousand employes should furnish $2,600,000 with which to work. It is stated that 40 per cent of the medical cost is received through State Compensation payments which brings the total sum available to over $3,000,000. This sum is spent for care of employes concentrated in a small area. It provides medical care for the employes only and does not provide for their families.

It can be readily seen that the setup for succesful operations of this pre-payment organization is particularly favorable. No organization without similar advantages could operate successfully on any such membership fee.

Nevertheless deKruif in his flamboyant style claims that Kaiser has made a discovery which will revolutionize the practice of medicine. He foresees that "little Mayo clinics" will be established even in small localities. The difficulties which are encountered in selling healthy individuals any insurance project, the added difficulties encountered when many employers are involved, the reluctance of healthy individuals and the eagerness of sickly ones to join such an organization, all tend to increase costs and endanger the actuarial soundness of voluntary insurance plans.

The whole tone of deKruif's book as shown by the excerpts mentioned is irritating. Many of the statements are false either directly or by inference and he repeatedly makes jibes at the medical profession, its national organization, the fee system, and the conservatism of the profession in general. The most deplorable results of this particular effort of deKruif to open the eyes of the medical profession is that his literary style is rather popular in nonmedical circles and his misleading statements have been rather widely spread.

No one is more eager to evolve methods for easing the cost of medical care than the physician and many new methods including prepayment plans are being tried out. There is nothing new about Kaiser's plan and his plan did not awaken the California physicians into forming the California Physicians Service as deKruif stated, for Kaiser's plan followed the organization formed by the California physicians. In addition deKruif is wrong in stating physicians are opposed to pre-payment plans and the numerous such organizations sponsored by medical groups are proof of this. The failure from a financial standpoint of many such sponsored plans which do not possess the advantageous

setup of Kaiser's organization as herein described is simple proof of the difficulties inherent in most pre-payment plans. It seems evident that a pre-payment plan based on the much publicized seven cents a day rate adopted by Kaiser will go on the rocks financially if generally applied.

THE BARDEN-LA FOLLETTE BILL

AN amendment to the Social Security Act known as the Barden-LaFollette Bill was passed by Congress last year and signed by the President July 6, 1943.*

In brief the Bill provides for vocational rehabilitation and physical restoration of war disabled civilians who have been civilian employes of the U. S. government or civilians in various activities such as the Air-Craft Warning Service, Civil Air Patrol, etc., and of citizens of states who are "found to require financial assistance with respect thereto." The federal government will provide: (1) the entire state administration expense of the program; (2) the entire cost of rehabilitation of war disabled individuals; and (3) one-half of the cost of the rehabilitation of other disabled persons.

In other words the federal government will subsidize the states which meet requirements by meeting half of the costs of the medical and vocational rehabilitation of their indigent citizens.

The federal government does not limit the states in their individual programs to the rehabilitation of only their indigent citizens but federal funds can be used only for the indigent cases. Rehabilitation of war disabled citizens however is not limited to indigents.

Expenditures for medical care in general including medical and surgical fees will be designated by the Administrator of the Federal Security Agency and will be in line with similar expenditures paid by state agencies such as the Workmen's Compensation.

The rehabilitation through vocational training and medical care of those unable to provide this service for themselves so as to make them self-supporting citizens is a worthy and economically valuable undertaking. In Minnesota we have a Division of Social Welfare with Dr. E. J. Simons in charge of the Medical Unit. Rehabilitation medically but not vocationally is providing the indigent of the state by this organization. The Barden-LaFollette Bill constitutes therefore another subsidy of states in matching state funds appropriated not only for medical rehabilitation but for vocational training of indigent citizens of all the states.

The medical rehabilitation of members of the armed forces and the vocational rehabilitation of those unable to return to their previous jobs after receiving medical care is naturally the function of the federal government.

Some tax payers believe, however, that rehabilitation of indigent citizens should be a function of each state. Some states such as West Virginia where Federal subsidy for rehabilitation was first tried out as an experiment three or four years ago have difficulty in appropriating sufficient funds for this purpose. If one state obtains a federal subsidy for any project it is natural for the other states to want the same subsidy and a state legislature has to exert considerable self-control to refuse any subsidy the other states are receiving.

The main objections to federal subsidies of the states is that money received by states is too often regarded as a gift and is spent extravagantly. State authorities too often ignore the fact that such sums are actually taxes collected from citizens of that state. Another equally important objection to federal subsidy of states is that it places control of state activities in the hands of bureaus in Washington.

Minnesota has provided for medical rehabilitation of its indigent citizens which after all is more important than vocational rehabilitation. A healthy man should be able in most instances to find a suitable job. In vocational rehabilitation lies the danger of an application of the program to those not strictly in the indigent group which may lead to extravagant expenditures.

MORE DOCTORS AND NURSES FOR THE SERVICES

THE Army and Navy are preparing the way for enlisting and training of medical officers for casualties which in the next months may amount to half a million. The Army needs an additional 3,000 medical officers, the Navy an equal number, and United States Public Health Service some 200, according to representatives of the Surgeons General of the three services

*A description of the Bill appeared in the *Journal AMA* for October 30, 1943 (p. 572).

and a representative of the National Committee on Procurement and Assignment, who visited the Twin Cities last month.

As a result of meetings held in the Twin Cities with those declared available by local Procurement and Assignment Committees, some fifteen physicians signified their willingness to apply for commission.

The nursing profession has been placed under the War Manpower Commission, and State and Local Procurement and Assignment Committees have been formed in each state. Nurses are still in demand for the armed forces, and pressure is being exerted to increase enlistment. The loss of nurses has already presented a serious problem in hospital administration. A dozen small hospitals in the state have been forced to close their doors simply on account of lack of nurses. This has proved a hardship to certain already over-worked physicians who have thus been forced to travel greater distances with their patients who require hospital care.

The trained nurse employed in a physician's office is a possible source for more enlistments. A survey is being made of these nurses who are eligible for military service, and doctors are being asked to coöperate in releasing them for military or more essential civilian services. Doctors who have a real need of a trained nurse in the office could substitute one not eligible for military service. There just aren't enough nurses to supply the demand.

✦ In Memoriam ✦

HAROLD B. LOUGHERY

Word has been received of the death, on November 22, of Dr. Harold B. Loughery who was formerly a Fellow in Surgery in the Mayo Foundation.

Dr. Loughery was born at Palestine, Illinois, in 1896. He received the degree of B.S. in 1919 and of M.D. in 1922 from the University of Illinois. He was an intern at the Ancker Hospital in St. Paul in 1922. He then practiced in Illinois for a year and at Muskegon, Michigan, for four years. He was a Fellow in Surgery in the Mayo Foundation from October, 1927, until October, 1930: from that time until his death he practiced surgery in Muskegon, Michigan.

He was a fellow of the American College of Surgeons and a member of the American Medical Association, the Alumni Association of the Mayo Foundation, Alpha Omega Alpha and Nu Sigma Nu.

GEORGINE M. LUDEN

Word has been received of the death, on November 20, of Dr. Georgine M. Luden who was formerly a Fellow in Pathology in the Mayo Foundation.

Dr. Luden was born in Amsterdam, Holland, in 1875. She received the degrees of physician (Arzt) from the Ludwig-Maximilian University in Munich in 1911, M.D. from the University of Munich in 1912 and Ph. D. in Pathology from the University of Minnesota in 1920. She was an intern in Munich for one year: at the Pathogenic Institute of Professor Max V. Borst for six months; at the Surgical Polyclinic for two months; and at the Medical Clinic for four months. She entered the Mayo Clinic as a visiting physician in 1912. She was a volunteer in cancer research here from 1914 to 1915, volunteer fellow in the Mayo Foundation from 1915 to 1920, first assistant in pathologic research from 1920 to 1921 and was first assistant in cancer research from 1921 to 1923 when she became an associate in cancer research.

After leaving the Mayo Clinic in 1929, Dr. Luden resided in Victoria, British Columbia, until her death. At the outbreak of the war she resumed work in pathology in the Victoria hospital until last year when her illness prevented that activity.

She was a member of the American Medical Association, the American Association for Cancer Research, the Association for the Study of Internal Secretions, the Medical Women's International Association, the American Association for the Advancement of Science, the International Association of Medical Museums, and the Association of Resident and Ex-Resident Physicians of the Mayo Clinic.

EDWIN J. WELTE

Lt. Edwin J. Welte of Saint Paul was killed in the battle of Tarawa in the Gilbert Islands when shell fire struck a landing boat.

Born in Crookston, Minnesota, Dr. Welte attended St. John's University and received his medical degree from the University of Minnesota. He held a surgical fellowship at the Minneapolis General Hospital before entering the Navy.

Dr. Welte is survived by his wife and son James, twenty-three months old, who live at 2057 Laurel Avenue, Saint Paul, and by his parents, Mr. and Mrs. H. J. Welte of Crookston, two brothers, Sgt. George Welte in North Africa and Alfred, a sailor at Farragut, Idaho, and a sister Marion, a student at St. Catherine's College, Saint Paul.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

ACTION BY THE NORTH CENTRAL CONFERENCE

EDITOR'S NOTE: The North Central Conference stems from the old Northwest Medical Conference. It was revived under its new name last year after the old conference had developed into the National Conference on Medical Service and thus lost its character as a forum for discussion of problems of this area. The action embodied in the resolution taken at the second annual meeting of this informal body held in St. Paul last month, has special significance because it was the North Central Conference, at its first meeting last year, which started the movement for a new unit of the American Medical Association. This unit, among other duties, was to be charged with the responsibility of setting up an office of information for medicine in Washington.

A group of western states, a New England group and separate county organizations in such states as Indiana and Michigan have expressed themselves as dissatisfied with the progress made by the Council and have threatened to set up organizations of their own to take care of functions assigned to the Council. The resolution printed below is an endorsement of the Council and a move to prevent creation of many spokesmen instead of one for medicine in Washington.

RESOLUTION ON THE COUNCIL ON MEDICAL SERVICE AND PUBLIC RELATIONS†

WHEREAS the North Central Conference, composed of officials and representatives of the state medical associations of Wisconsin, Iowa, Minnesota, North and South Dakota, and Nebraska, is assembled on this day, January 9, 1944, in the City of Saint Paul, Minnesota, for the purpose of discussing economic problems common to all of the states of this area; and

WHEREAS we, as members of this Conference, are conscious of the fact that legislation is pending in the Congress which may alter the normal procedures of the practice of medicine; and

WHEREAS we are likewise mindful of the activities of the new Council on Medical Service and Public Relations and are disturbed by the fact that some states and groups of states have proposed to establish their own offices of information in the national capitol independent of the national organization of physicians, the American Medical Association; and

WHEREAS we, as officers and representatives of the states represented in the North Central Conference, have full faith and confidence in the ability and purpose of the Council on Medical Service and Public Relations to accomplish the objectives of all these separate groups: Therefore be it

RESOLVED, That we urge that an office of medical information be established in Washington, D. C., by and under the direction of the Council on Medical Service and Public Relations and that the Trustees of the American Medical Association provide adequate funds for the establishment of such an office, together with the necessary personnel, so that the medical profession of America can be represented, with harmony and unity of purpose, by a single national office rather than by a number of separate offices established by separate and unrelated professional groups as proposed by several states and groups of states, and be it

RESOLVED FURTHER, That a copy of this resolution be forwarded to the Board of Trustees of the American Medical Association, to the Council on Medical Service and Public Relations, to the state associations which are members of the North Central Conference and to the National Conference on Medical Service and, further, that this resolution be introduced to the House of Delegates of the American Medical Association at its next annual meeting.

†Passed by the North Central Conference on Sunday, January 9, 1944

MATERNAL AND INFANT CARE FEES ARE DIFFERENT

The current Children's Bureau program for obstetric and pediatric care for wives of infants of enlisted men occupied a considerable share of discussion time at the North Central Conference.

Six states were represented and there were

almost as many variations in their individual agreements with the Children's Bureau as there were states represented. Maximum fees approved under the program varied from $35 in Iowa to $50 in South Dakota and Nebraska for identical services, depending perhaps, as one delegate put it, on what kind of horse traders state health and medical association officials in the various states turned out to be. It developed, indeed, that bureau representatives had assured all of them that they were receiving the maximum allowed under the regulations. The Minnesota allowance is now $40 for complete obstetrical care under the plan. But steps will be taken immediately, on the basis of reports made at this Conference, to increase the maximum here to $50.

Only State to Refuse

North Dakota was the only state among the six and, in fact, the only state in the entire United States which has as yet, reached no agreement either with state health officials or physicians for operation of the plan. Thus no soldiers' wives or babies in North Dakota are getting the benefit of federally financed obstetric and infant care. At the same time, North Dakota doctors are making it a point to see that no soldier's wife or baby goes without medical service, while rejecting the Children's Bureau program.

The situation in North Dakota is peculiar in that only one hospital in the entire state is able to conform to all Children's Bureau requirements. Under bureau regulations, furthermore, medical service is linked with hospital service for obstetrical cases and if arrangements were made to pay for either service under the plan, separately, the other service would have to be given gratis. The opposition of the North Dakota State Medical Association has been loyally backed up by its State Board of Health and is being continued in spite of protests from the Farmers' Union and other organizations. Other states in this area will watch with great interest the progress of the North Dakota controversy.

Principles Unsound

All Conference spokesmen agreed that the principle upon which the program is based is unsound and that the way is being paved, perhaps, for more extensive future programs. In this instance, the program was formulated without benefit of medical advice and so presented that most medical associations and health departments felt they could not refuse to coöperate lest they lay themselves open to a charge of unpatriotic behavior.

The wide range of fees paid showed conference members that arrangements for an exchange of information on such matters, at least between states in this area, might be of great advantage to all. One of the important accomplishments of the 1944 session was therefore a definite understanding among them by which information on all such matters of mutual importance can be speedily exchanged.

GOVERNMENT HEALTH INSURANCE SEEN AS ISSUE FOR 1944

Evidence is piling up to the effect that federal health and hospital insurance will be a political issue in the next presidential campaign.

Congress has taken no action on the Wagner-Murray-Dingell Bill and is said to be unlikely to do so at this session. But the Social Security Board, in its eighth annual report to Congress, has for the first time openly recommended federal insurance to cover doctor and hospital bills and the President has publicly affirmed his desire to strengthen and round out the Social Security program. It is to be expected that the President's program will be identical with the program proposed by his appointee, Arthur J. Altmeyer, head of the Social Security Board, whose report was nicely timed to follow, within a few days, the President's message to Congress.

No Surprise

In view of these events, the warning by Representative Day, republican member of Congress from Illinois, that federal health insurance will be a "major plank in President Roosevelt's fourth term platform," as quoted in a dispatch from the Associated Press, is interesting but hardly a matter for surprise.

At the same time, members of Congress are showing themselves to be extremely sensitive to any charge of favoring "socialized medicine," so-called, an aspect of the whole situation in which physicians and others who are opposed to extension of government into care of the sick, may perhaps take comfort and encouragement.

Congress Fears It

It is a fact that members of both the Senate and the House vie with each other, these days, to give expression to their fear of socialized medicine whenever any legislation with a flavor of federal aid in the distribution of medical service comes up. The attempt to secure an appropriation to help meet the problem of relocating physicians in shortage areas is a case in point.

In this instance, representatives of the American Medical Association, the Procurement and Assignment Service and the United States Public Health Service all backed a measure, introduced by the public health service, requesting funds for the Surgeon General of the public health service to authorize assignment of medical and dental personnel of the public health service to critical shortage areas. At the same time, permission was also sought to enter into agreements with private practitioners who might be willing to move to these areas, in consideration of a relocation allowance to be paid for three months together with travel and transportation expenses for their families and household effects.

In spite of such reassuring backing, however, debates on the measure in both houses expressed the fear that "providing direct medical attention to the civilian population with physicians paid by the Federal government" smacked of socialized medicine and appropriations were refused.

The plan to send salaried personnel of the public health service to shortage areas was accordingly dropped; but the second part of the original proposal which called for an appropriation of $345,000 to provide relocation allowances and travel expenses was introduced by itself, as an amendment to a deficiency bill, by Senator Richard B. Russell of Georgia. This amendment was eventually passed by the Senate, though not without another lively exchange between the senators on the danger of socialized medicine, also a ringing disavowal of any such heresy by Senator Russell.

Amendment Passed

After a conference between House and Senate committees, the amendment finally emerged with the appropriation reduced from $345,000 to $200,000 to be used, briefly, as follows: the community in need of aid must make application to the public health service and must pay 25 per cent of the $250 allowed monthly for three months to the relocating physicians, also 25 per cent of the expense of moving and travel for the practitioner and his family. The doctor or dentist who is thus relocated, must promise to remain at least for one year and he must be licensed to practice under the laws of the state involved.

It is clear, in any case, that Congress is wary. The term, socialized medicine, is already a political challenge and promoters of federal health and hospital insurance will have to show a solid backing from the voters before this Congress, at least, will risk any radical reshaping of traditional methods of practice.

Alternative Needed

Physicians, especially, who oppose government control of private practice, will seriously fail in their obligations if they do not take advantage of this situation. They must not only inform members of Congress of their opposition and why, but they must also be prepared to arm Congress with a sound and well-considered policy for the improvement of all health services in the United States which can be advanced as an alternative to administration proposals for government care of the sick.

A FRIENDLY ADMONITION CONCERNING MEDICAL TESTIMONY

Three years ago the Minnesota State Medical Association created a Committee on Medical Testimony. The function of this committee is to investigate complaints made by judges and others concerning medical testimony. The need for such a committee was stressed by eminent jurists and others in the State of Minnesota. It was pointed out that every so often a case, civil or criminal, is heard in Court in which the medical testimony is so conflicting that it is of little benefit to the court or jury or both. Generally speaking, there are two kinds of medical testimony: the first being testimony as to the facts in a given case. The second is opinion testimony applicable to the facts or arising therefrom. Factual testimony, as a rule, occasions little difficulty. Opinion testimony creates the problem.

An absolute inability to harmonize opinion testimony in a given case does not necessarily mean that one or more witnesses have testified falsely. It may mean that, or what perhaps happens more frequently, it may indicate that

one or more witnesses have failed to properly evaluate the facts before expressing the opinion.

This Board has had occasion to investigate a complaint referred to it by the Committee on Medical Testimony concerning the testimony given by a physician as an expert witness for a defendant charged with murder. The Committee on Medical Testimony came to the conclusion that the physician's testimony was unjustified. This Board after a careful investigation of the matter came to the same conclusion and censured the physician. In fairness to the physician concerned, it must be stated that the Board was convinced that neither perjury nor monetary gain were factors in the giving of the testimony. It is interesting to note that in the trial nine physicians were called as witnesses. Only one testified that the defendant was suffering from a named physical or mental ailment. The trial court refused to follow the testimony of this physician but accepted the testimony of the others and found the defendant guilty on four counts of murder. An appeal was taken to the Supreme Court where the trial court was upheld. Here again we note that the Supreme Court commented on the fact that none of the other expert witnesses agreed with the opinion expressed above.

When the case was before this Board, we stated:

"This Board is of the opinion that no physician has a right to practice medicine just as he pleases, nor to testify in court in a similar fashion. We believe that a physician's testimony should be based upon a factual background that has been carefully scrutinized by the physician before he expresses his opinion. This opinion should be reasonable and surrounded by every mark of truthfulness and sincerity. Under those circumstances the opinion is of value to courts and juries alike. The scrutiny required is all the greater where the defendant is on trial for murder and the history of any physical or mental abnormalities is furnished by the defendant or someone close to him."

Next to saving life and giving aid to the sick and injured, no greater responsibility devolves upon the medical profession than giving testimony in court or elsewhere. In many cases, as in the case referred to, the decision rests, primarily, on medical testimony. Without it, courts and juries would be unable to function. In the discussions that led to the creation of this committee, we were advised that in the great majority of cases no criticism could be made of the medical testimony. It is the exceptional case that we should strive to eliminate. We must also remember that the right of a physician to continue in the practice of medicine is measured, not only by his competency as a physician, but also by what he says and does as a physician.

These few words of friendly advice are not intended to portray the wisdom of Solomon, for they apply to us as well as to others, but rather to emphasize that the courts and other quasi-judicial bodies of this state, our neighboring states and the public as well, are rightfully entitled to accuracy, honesty, fairness, modesty and tolerance from physicians who are called upon to testify.

JULIAN F. DUBOIS

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

Julian F. DuBois, M.D., Secretary

MINNEAPOLIS PHYSICIAN'S LICENSE REVOKED IN CANCER CASE

Re the Revocation of the License of Walter D. Hammond, M.D.

The Minnesota State Board of Medical Examiners, following a hearing on December 16, 1943, revoked the medical license of Dr. Walter D. Hammond, 106 Washington Ave. So., Minneapolis.

Late in June, 1943, the State Board of Medical Examiners was requested to investigate the circumstances surrounding the diagnosis and treatment of one Ernest Anderson, twenty-seven years of age, of Hastings, Minnesota. It was claimed that Ernest was critically ill of a malignant teratoma of the testicle, and that for twenty-two months prior to that time, had been a patient of The Health Institute, 106 Washington Ave. So., Minneapolis. It was also alleged that the diagnosis made at The Health Institute was "hydrocele" and that Ernest had paid over $1,000 in fees including $485 for 900 capsules containing some unknown medication. Mr. Brist, representing the State Board of Medical Examiners, was advised that there was only a slight chance that Ernest would live until the next regular meeting of the Medical Board. In view of that fact Mr. Brist obtained an order from the Hon. W. A. Schultz, Judge of the District Court of Dakota County, to take Ernest's testimony forthwith. Ernest testified that he went to The Health Institute in September, 1941, because he noticed an enlargement of his testicle, and that he was examined there by Dr. Hammond. He further testified that two unlicensed individuals, A. A. Morgan and C. C. Morgan, at The Health Institute, made a diagnosis of "hydrocele." Ernest further stated that this condition was treated by the external application "of cotton with some fluid on it" and the application of heat. Ernest also testified that he paid the Morgans $1,250, which included $485 for capsules that were charged for at the rate of $55.00 per hundred for the first 700, and $50.00 a hundred for 200. According to Ernest's testimony he went to The Health Institute twice a week for over a year and once a week for six or seven months. Early in June, 1943, Ernest placed himself under the care of a Hastings physician and was operated on June 14 for a malignant teratoma of the testicle. Through the coöperation of Ernest's physi-

cian at Hastings, the Superintendent and Medical Staff of the University Hospital, Ernest was admitted to the latter institution on July 28, 1943, where he remained until his death on August 24. The cause of death was given as malignant teratoma of the testicle with pulmonary metastasis.

Dr. Hammond was charged with "immoral, dishonorable, and unprofessional conduct" in that he permitted two unlicensed individuals, A. A. Morgan and C. C. Morgan, associated with him in the practice of medicine, to examine, diagnose and render treatment to Ernest. Dr. Hammond was also charged with having failed to take the necessary and proper steps to correctly diagnose the ailment and with failing to render proper treatment for the condition. It was also alleged that "a grossly exorbitant fee of approximately $1,250" was charged Ernest, including $485 for "capsules which were of no value whatsoever" in the treatment of cancer. It was also alleged that because of the unlawful and dishonorable conduct on the part of Dr. Hammond "every chance for the ultimate recovery" of the patient was destroyed. At the hearing Dr. Hammond admitted that he had examined Ernest but denied making a diagnosis of "hydrocele." He also claimed that he had seen Ernest on only one occasion. Dr. Hammond admitted that he had been associated, for a number of years, with the two Morgans, but disclaimed responsibility for their acts. Dr. Hammond further testified that he neither owned The Health Institute nor did he pay rent for the space occupied by him. On cross-examination Dr. Hammond admitted that he received as compensation only such share of the proceeds of The Health Institute as was allotted to him by the Morgans. Dr. Hammond was found guilty of the charge by the unanimous vote of the Board and his license as a physician was ordered revoked. During the investigation, and prior to the hearing, A. A. Morgan committed suicide.

Dr. Hammond was born at Covington, Kentucky, in 1879, and graduated from the Illinois Medical College in 1900. He was licensed by examination in Minnesota in 1901.

MINNEAPOLIS DRUG ADDICT ORDERED COMMITTED TO GOVERNMENT HOSPITAL

Re: United States of America vs. Albred K. Scherf

On January 11, 1944, Alfred K. Scherf, fifty-four years of age, 810 Russell Ave., No., Minneapolis, was ordered by Judge M. M. Joyce of the United States District Court to be taken by the United States Marshal to the Government Hospital for narcotic addicts at Lexington, Kentucky. Scherf was indicted on December 30, 1943, by a Federal Grand Jury for forging physician's prescriptions for narcotic drugs. He pleaded guilty on January 10, 1944. The evidence disclosed that Scherf had obtained a number of prescription blanks of a north side Minneapolis physician, without the knowledge of the physician, filled in the prescriptions and signed the physician's name to them. Following this, Scherf had the prescriptions filled at four Minneapolis drug stores, obtaining 42 1/16 gr. dilaudid tablets.

Scherf received a ninety-day sentence in the Minneapolis Workhouse on June 15, 1939, for violating the Minneapolis City Narcotic Drug Ordinance. On September 25, of the same year, he received a sixty-day workhouse sentence for vagrancy.

LICENSE OF MINNEAPOLIS PHYSICIAN REVOKED

Re the Revocation of the License of O. H. Bakke, M.D.

On December 16, 1943, following a hearing, the Minnesota State Board of Medical Examiners revoked the license to practice medicine formerly held by Dr. O. H. Bakke, 2117 Kenwood Parkway, Minneapolis. Dr. Bakke's license had been suspended on April 10, 1943, for a period of five years for issuing 136 fictitious narcotic prescriptions to four individuals. Notwithstanding the fact that Dr. Bakke had no lawful right to continue to practice medicine, an investigation by the Federal Bureau of Narcotics and the Minnesota State Board of Medical Examiners disclosed that Dr. Bakke was continuing to practice medicine from his home and had issued four narcotic prescriptions to one G. F. Lambert, between October 24, 1943, and November 1, 1943. There was also evidence that Dr. Bakke, three days before the Board hearing, issued a narcotic prescription to another individual.

Dr. Bakke was born in 1872 at Kenyon, Minnesota. He graduated from the Medical School at Hamline University in 1896 and was licensed to practice medicine in Minnesota the same year.

GUIDANCE CLINIC TO CONTROL ALCOHOLISM

A new step toward control and prevention of habitual drunkenness, both now and after the war, is being taken, it appears from an announcement by Yale University.

The announcement is of the opening next month of a diagnostic and guidance clinic for inebriates, first of the kind in this country. The clinic and a similar one to be opened soon in Hartford, Conn., are sponsored jointly by the Yale Laboratory of Applied Physiology and the Connecticut Prison Association.

Dr. Howard W. Haggard of Yale will be in general charge with Dr. Ralph Banay, psychiatric consultant of the New York State Parole Board and former chief psychiatrist of Sing Sing prison, serving as medical director.

A staff of psychiatrists, psychologists and social workers will study each patient, determine his type and the kind of treatment he requires, and arrange to use the existing resources of the community for his treatment and rehabilitation. Representatives of Alcoholics Anonymous and the Salvation Army and a legal consultant will be on call for assistance.

Serious as the problem of alcoholism is today, it is feared that after the war it will become much worse. It is hoped, therefore, that the clinics may serve as experimental models for similar ones to be set up in other states.—*Science News Letter,* January 15, 1944.

✦ Reports and Announcements ✦

MEDICAL BROADCAST FOR FEBRUARY

The following radio schedule of talks on medical and dental subjects by William A. O'Brien, M.D., Director of Postgraduate Medical Education, University of Minnesota, is sponsored by the Minnesota State Medical Association, the Minnesota State Dental Association, Minnesota Hospital Association and University of Minnesota School of the Air:

February 2—11:00 a.m.	(WLB)	Nutritional Disorders
February 5— 9:15 a.m.	(WCCO)	Venereal Disease Control
February 5—11:30 a.m.	(WLB-KROC)	Medicine in the News
February 9—11:00 a.m.	(WLB)	Body Weight and Health
February 12— 9:15 a.m.	(WCCO)	Amebiasis
February 12—11:30 a.m.	(WLB-KROC)	Medicine in the News
February 16—11:00 a.m.	(WLB)	Care of the Teeth
February 19— 9:15 a.m.	(WCCO)	Atypical Pneumonia
February 19—11:30 a.m.	(WLB-KROC)	Medicine in the News
February 23—11:00 a.m.	(WLB)	Diseases of Teeth and Gums
February 26— 9:15 a.m.	(WCCO)	Sore Mouth
February 26—11:30 a.m.	(WLB-KROC)	Medicine in the News
February 28— 4:30 p.m.	(WCCO)	Your Hospital in Wartime—The Nurse

AMERICAN COLLEGE OF SURGEONS

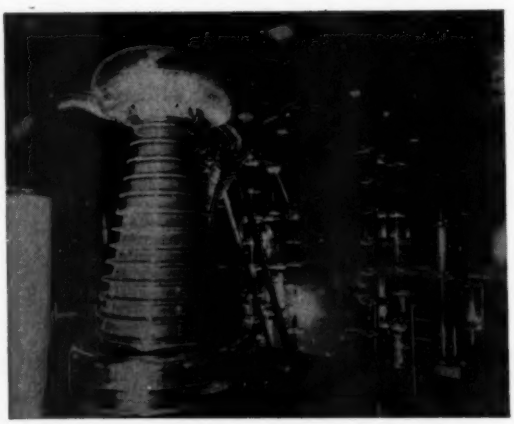
Minneapolis will be one of twenty-two cities in the United States and Canada selected by the American College of Surgeons for one-day War Sessions to be held in March and April, 1944. Advancements in military medicine and developments in civilian medical research and practice will be presented by representatives of governmental agencies such as the Army, Navy, Public Health Service, Veterans Administration, and by civilian physicians and surgeons.

Experiences of medical officers who have been on active duty in combat zones will be specially featured. The meeting will be open to the profession at large including medical officers of the Army and Navy, residents, interns, medical students, and executive personnel in hospitals. The Minneapolis meeting will open at 8:20 a.m., March 2, 1944, at the Hotel Nicollet.

UROLOGY AWARD

The American Urological Association offers an annual award "not to exceed $500" for an essay (or essays) on the result of some specific clinical or laboratory research in urology. The amount of the prize is based

Radiation Therapy Institute



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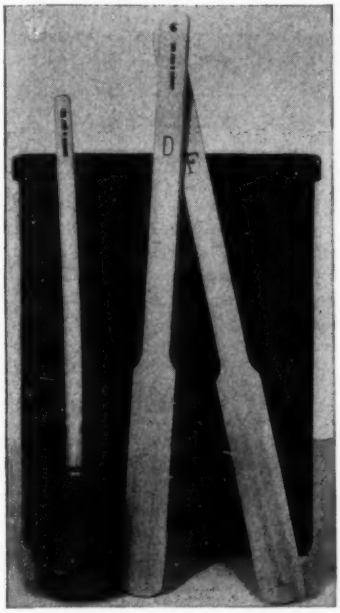

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on the merits of the work presented, and if the Committee on Scientific Research deem none of the offerings worthy, no award will be made. Competitors shall be limited to residents in urology in recognized hospitals and to urologists who have been in such specific practice for not more than five years. All interested should write the Secretary, for full particulars.

The selected essay (or essays) will appear on the program of the forthcoming meeting of the American Urological Association, June 19-June 22, 1944, Hotel Jefferson, St. Louis, Missouri.

Essays must be in the hands of the Secretary, Dr. Thomas D. Moore, 899 Madison Avenue, Memphis, Tennessee, on or before March 15, 1944.

REFRESHER COURSE IN OTOLARYNGOLOGY

The Department of Otolaryngology of the University of Illinois College of Medicine announces its spring refresher course, to be held at the College in Chicago, March 20 to 25, inclusive, 1944. The course will be largely didactic, but some clinical demonstrations have been included. It is intended primarily for specialists, who, under existing conditions, are able to devote only a brief period to postgraduate review study. The fee is $50.00. Registration will be limited. In letter requesting application, state school and year of graduation; also give details concerning specialty training and experience. Address—Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago, Illinois.

CLAY-BECKER MEDICAL SOCIETY

Dr. V. D. Thysell of Hawley was elected president of the Clay-Becker Medical Society at the annual meeting held in Detroit Lakes in December. Other new officers are: Dr. A. R. Ellingson, Detroit Lakes, vice president: Dr. Carl Simonsen, Barnesville, secretary-treasurer.

GOODHUE COUNTY MEDICAL SOCIETY

Officers of the Goodhue County Medical Society for the coming year were elected at the annual meeting held at Red Wing as follows: President, Dr. R. F. Hedin, Red Wing; vice president, Dr. M. R. Williams, Cannon Falls; secretary-treasurer, Dr. James Brusegard, Red Wing. Dr. Hedin was named delegate to the State Association convention with Dr. H. T. McGuigan, Red Wing, as alternate.

Of the twenty-four members of the Society, six are now reported in service, leaving an active membership of eighteen. The most important work of the Society during the past year was the establishment of a blood bank in Red Wing, one of the few communities of its size to have such a setup.

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RED RIVER VALLEY MEDICAL SOCIETY

Dr. C. H. Holmstrom of Warren was elected president of the Red River Valley Medical Society at the annual meeting held in Crookston in December. Dr. C. L. Oppegaard of Crookston was reëlected secretary-treasurer.

WASECA COUNTY MEDICAL SOCIETY

The annual business meeting of the Waseca County Medical Society was held at Waseca in December with the following chosen to serve in 1944: President, Dr. Clifford Wadd, Janesville; vice president, Dr. H. M. McIntire, Waseca; secretary-treasurer, Dr. S. C. G. Oeljen, Waseca.

WATONWAN COUNTY MEDICAL SOCIETY

Dr. E. J. Bratrude of St. James was elected president of the Watonwan County Medical Society at the annual meeting held late in December at St. James. Dr. B. H. Grimes of Madelia was elected secretary-treasurer.

WINONA COUNTY MEDICAL SOCIETY

The annual meeting of the Winona County Medical Society was held at the Hotel Winona in January. Officers elected to serve for the coming year are: President, Dr. Victor J. F. Bruder; vice president, Dr. Herbert Heise; secretary, Dr. A. E. Meinert; treasurer, Dr. R. H. Wilson, all of Winona.

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WOMAN'S AUXILIARY

MRS. F. S. MCKINNEY, *President*
Minneapolis, Minnesota
MRS. J. R. AURELIUS, *Publicity Chairman*
Saint Paul, Minnesota

The midwinter board meeting of the Auxiliary to the Minnesota Medical Association will be held at the St. Paul Athletic Club on February 11 at one o'clock. The president, Mrs. F. S. McKinney, urges all county chairmen of the War Service and Emergency Nursing Committees to attend this meeting with their county presidents.

Speakers will be Miss Thelma Dodd and Louise Wagen Weller who are recruitment chairmen for the Minnesota State Nurses Association. Mrs. Von der Weyer and Mrs. Mark Ryan of St. Paul are in charge of the luncheon arrangements.

WASECA COUNTY

Tuesday evening, January 4, the doctors of the Waseca County Medical Society and their wives met at the home of Dr. and Mrs. B. J. Gallagher.

The men proceeded with their annual meeting while their wives welcomed Mrs. F. S. McKinney of Minneapolis who had come to help them organize as an auxiliary.

Mrs. S. C. Oeljen was elected president, Mrs. H. M. McIntire, vice president and Mrs. B. J. Gallagher, secretary-treasurer.

Their aims are to assist in the war service program adopted by the State Auxiliary and to sew for, and serve the Waseca Hospital in any way necessary.

CLINICAL-PATHOLOGICAL CONFERENCE

(Continued from Page 129)

treatment is no contradiction to the use of sulfonamides when these are indicated. Such a leukopenia may be the result of the underlying infection. However, the white blood count must be constantly followed throughout the course of treatment, and sulfonamides discontinued if a fall in white blood count occurs.

A few other symptoms of sulfonamide toxicity may be mentioned without further discussion. These include joint pains, conjunctivitis, myopia, optic neuritis and thrombocytopenic purpura. Although not commonly seen, such symptoms must be constantly remembered in any case receiving sulfonamide therapy.

Summary—The toxic effects of sulfonamide therapy must be constantly kept in mind whenever the drugs are administered. Such toxic effects are frequent enough and serious enough to preclude the indiscriminate use of sulfonamides.

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Of General Interest

Dr. L. S. Nelson, formerly of the Adams Clinic, Hibbing, Minnesota, is now in the Armed Forces, at present being stationed at Camp Blanding, Florida.

* * *

Dr. J. P. Nehring of Preston has opened a hospital there. Announcement has not been made as to whom he will place in charge.

* * *

Dr. Edmund Miller, formerly of St. Peter, has been appoionted acting superintendent of the Anoka State Hospital, succeeding Dr. W. P. Gardner, now of Saint Paul.

* * *

Dr. William P. Standard has recently moved from Rochester, Minnesota, to Macomb, Illinois, where he will be associated in practice with his father, Dr. A. P. Standard.

* * *

Memorial Hospital, at Milaca, Minnesota, which opened in October, 1941, was closed January 1, 1944, for an indefinite period because of wartime conditions and labor shortages.

* * *

Dr. Frederick P. Army of Preston, now serving overseas as a flight surgeon in the air evacuation branch of the medical corps, recently received promotion from Captain to Major.

* * *

Dr. Alfred W. Adson of Rochester spoke in the Milwaukee Auditorium on January 14 on the Wagner-Murray-Dingell Bill at a public meeting held by the Medical Society of Milwaukee County.

* * *

Dr. C. A. Saffert of New Ulm was elected president of the staff of Loretta Hospital at the annual meeting held in January. Dr. H. A. Vogel was elected vice president, and Dr. T. H. Fritsche, secretary.

* * *

Major Carlos C. Craig, base surgeon at the army air base in Rochester, Minnesota, assumed duties at the Mayo Clinic in January. He has been in Rochester since February, 1943, at the time the air base was formed. His family, who had remained in Grand Island, Nebraska, the past year, have now joined Major Craig in Rochester, where they will make their home.

Dr. Walter P. Gardner, formerly superintendent of the State Hospital at Anoka, Minnesota, is now associated with Dr. William H. Hengstler in the practice of Neuropsychiatry with offices at 1068 Lowry Medical Arts Building, Saint Paul.

* * *

Dr. Vincent Ryding, formerly of Lindsborg, Kansas, has located at Starbuck, Minnesota, for the practice of medicine. Dr. Ryding, a graduate of the Kansas State Medical School, served his internship at Swedish Hospital in Minneapolis.

* * *

Dr. Paul F. Hausmann recently completed his surgical training as a Fellow in Surgery and assistant to the surgical staff at the Mayo Clinic and has established an office for the practice of general surgery in Milwaukee, Wisconsin.

* * *

Lt. Col. George A. Williamson is at present chief of the Surgical Service at the DeWitt General Hospital at Auburn, California. This hospital is in the process of completion for use as a surgical hospital and amputation center and will have a capacity of 1,730 beds.

* * *

Dr. J. C. Vezina of Mapleton was elected president of the Immanuel Hospital staff at Mankato at the annual dinner meeting held in January. Dr. Roger Hassett of Mankato was elected vice president, and Dr. F. W. Franchere of Lake Crystal, secretary.

* * *

Dr. J. M. Hayes has recently announced the opening of offices in Los Angeles and Pasadena for the practice of medicine. He makes his home in Monrovia, California, with office hours divided between the Los Angeles and Pasadena locations.

* * *

Dr. J. E. Halpin of Rush City was elected president of the East Central Medical Association at the December meeting in Cambridge. Mrs. W. F. Nordman of Mora, wife of the retiring president of the Association, was elected president of the Woman's Axiliary.

* * *

Dr. Burton A. Orr, of Faribault, a graduate of the University of Minnesota Medical School in the December 16 class, will serve for nine months as an intern

(Continued on Page 154)

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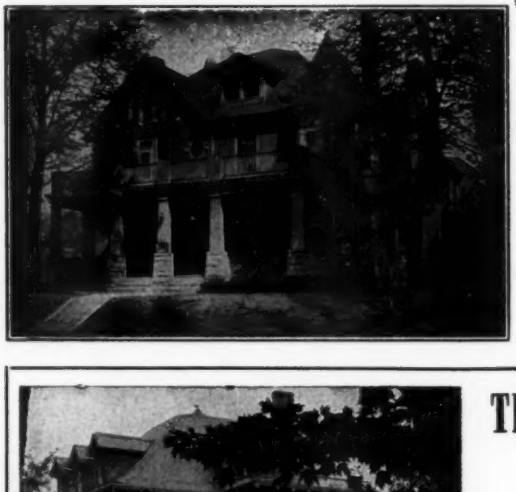

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L. R. Gowan, M.D. A. S. Nissen, M.D.

in a Detroit, Michigan, hospital, after which he will become active as a First Lieutenant in the Medical Corps of the U. S. Army.

* * *

Dr. Charles Anderson Aldrich, formerly chief of staff of the Children's Memorial Hospital, Chicago, and professor of pediatrics at Northwestern University, has joined the staff of the Mayo Clinic, Rochester, as a member of the section on pediatrics.

* * *

Dr. R. J. Moe, Duluth, was elected chief of staff of Miller Memorial Hospital at the annual meeting held in January. He succeeds Dr. P. G. Boman. Other staff officers elected are: Dr. L. A. Barney, vice chief; Dr. A. J. Spang, secretary-treasurer; Dr. McHaffie and Dr. Boman, executive committee members.

* * *

Dr. F. A. Olson of Minneapolis has taken a leave of absence to become associated with Dr. W. A. Morrison, chief of the medical staff of the Santa Fe Railway, during the war emergency. He will be a member of the surgical staff of the Santa Fe Hospital in Los Angeles, California.

* * *

The St. Cloud Hospital staff at its regular meeting in December elected the following to office for the coming year: Dr. Charles S. Donaldson of Foley, president; Dr. Everett J. Schmitz of Holdingford, vice president; Dr. Leonard A. Veranth of St. Cloud, secretary.

* * *

Dr. Zondal Miller, who completed his medical course at the University of Minnesota, December 16, 1943, was one of six students in his class to be granted a naval internship. He was commissioned a junior grade lieutenant the following day and began his services at the Naval Base Hospital at Long Beach, California, soon afterwards. Before leaving for the coast he was married to Miss Esther Singer of Saint Paul.

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Dr. Ludwig Lima, Jr. of the University of Minnesota Health Service has moved to Montevideo, Minnesota, to join his father, Dr. L. R. Lima, in the practice of medicine. Mrs. Brunhild Brown, sister of Dr. Lima, will act as office nurse for her brother, having recently completed her course in nurse's training at University Hospitals.

* * *

The new Deer River Hospital at Deer River, Minnesota, was opened the first of the year and is now in operation. The structure is 22 feet wide by 85 feet long, with offices and consultation rooms on the first floor and patients' rooms and operating room on the second floor. Dr. George Miners and Dr. H. R. Anderson are proprietors of the hospital.

* * *

Dr. George T. Ayres of Ely retired from practice, December 31, 1943, having served as a member of the staff of the Shipman Hospital at Ely since September 1, 1899. Dr. Ayres' retirement also dissolved his partnership with Dr. H. N. Sutherland, with whom he was associated as proprietor of the Shipman Hospital. His interest in the hospital has been taken over by Dr. Jack P. Grahek.

* * *

Dr. G. K. Wharton, of London, has recently accepted a professorship in clinical medicine at Queen's University, Kingston. Dr. Wharton has been on the staff of the medical school at the University of Western Ontario, on the staff of Victoria and St. Joseph's Hospitals, and a consultant at the Ontario Hospital for most of his twelve years' residence in London. Dr. Wharton was a fellow in medicine in the Mayo Foundation from January, 1929, until January, 1932. He received the degree of M.S. in medicine from the University of Minnesota in 1931.

* * *

Lieutenant Ferrall H. Moore, MC, USNR, has been awarded the Legion of Merit according to the "Bureau of Naval Personnel Information Bulletin" December, 1943, No. 321.

". . . As medical officer in charge of the evacuation of casualties at Henderson Field, Guadalcanal, from 30 November 1942 to 4 February 1943, Lieutenant Moore instituted a plan which facilitated the loading and evacuation of patients. His efficiency in handling aircraft flight crews, sick, and wounded made possible the transfer of several hundred men to base hospitals by air without a fatality en route."

Lieutenant Moore was a fellow in medicine in the Mayo Foundation from October, 1936, until January, 1938.

* * *

During the weeks of allied offensive on Tarawa and the Gilbert Islands many of the wounded men were brought back to the Old Navy Hospital at Pearl Harbor where they received surgical treatment by a Minnesota physician, Lt. (sg) H. B. Neel, formerly of Albert Lea. Dr. Neel left Albert Lea in October, 1942,

to be with the USNR Medical Corps at Bremerton, Washington, where he was a member of the surgical staff of the U. S. Naval Hospital in the urology division, later going to Santa Barbara and thence to the Hawaiian Islands. Dr. Neel returned to Albert Lea for a short leave the latter part of December and is now serving on a hospital ship plying the waters of the Pacific.

* * *

Dr. Leverett D. Bristol, executive director of the Hospital Council of Greater New York, has been appointed chairman of the Health Advisory Council of the U. S. Chamber of Commerce. Dr. Bristol graduated in medicine at Johns Hopkins University and obtained his degree in public health from Harvard. He first practiced medicine in Saint Paul, was Professor of Bacteriology at the University of Syracuse and the University of North Dakota, was Fellow and Assistant at the Harvard Medical School and State Commissioner of Health for Maine. He was also Professor of Preventive Medicine and Public Health at the University of Minnesota and was Health Director of the American Telephone and Telegraph Company from 1929 until December 1, 1943.

* * *

Lt. Colonel John M. Snyder, former fellow in the Mayo Foundation, has received a citation from Headquarters, North African Theater of Operations which reads:

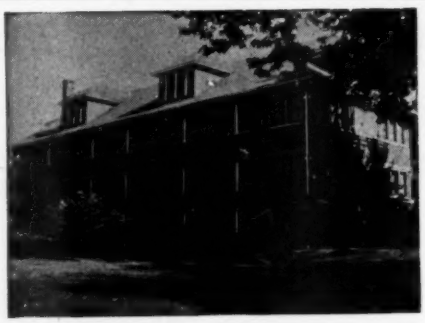
"Under authority contained in Section IV, War Department Circular No. 131, dated 3 June 1943, the Legion of Merit is awarded in the name of the President to each of the following individuals: . . .

"John M. Snyder, 031691, Lieutenant Colonel, MC, . . . Surgical Hospital, for exceptionally meritorious conduct in the performance of outstanding services from 19 March 1943 to 8 April 1943. On many occasions Lt. Colonel Snyder, Chief of Surgical Service, worked unceasingly at the operating table until exhausted and then after only two hours of rest would continue his duties. The fidelity to his task and the calm and tenacious manner in which he performed his duties were a fine example and an inspiration to all with whom he came in contact. Lieutenant Colonel Snyder's performance of duties exemplifies the highest traditions of Military service . . ."

Dr. Snyder was a fellow in surgery in the Mayo Foundation from October, 1936, until March, 1941.

* * *

Dr. Arild E. Hansen, professor of pediatrics at the University of Minnesota, left in January to become professor and head of the Department of Pediatrics at the University of Texas. He will also be director of the Child Health program of the Buchanan Foundation of Texas. Dr. Hansen is the fourth staff member who has left the Department of Pediatrics at Minnesota to become head of a corresponding department in another university during the past three years. Dr. Chester Stewart is now at the University of Louisiana; Dr. Ralph V. Platou at Tulane University, and Dr. John A. Anderson at the University of Utah.



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BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

MODERN MANAGEMENT OF COLITIS. J. Arnold Bargen, M.D., M.S., F.A.C.P. Chief of the Section on Intestinal Diseases, Division of Medicine, Mayo Clinic; Associate Professor of Medicine, Mayo Foundation, Rochester; Secretary American Gastroenterological Association; Vice Chairman Section on Gastroenterology and Proctology, American Medical Association. 322 pages. Illus. Price, $7.00, cloth. Springfield, Ill.: Charles C. Thomas, 1943.

ESSENTIALS OF DERMATOLOGY. Second Edition. Norman Tobias, M.D., Senior Instructor in Dermatology, St. Louis University, Assistant Dermatologist Fermin Desloge and St. Mary's Hospitals, Visiting Dermatologist St. Louis City Sanitarium and Isolation Hospital; Fellow American Academy of Dermatology and Syphilology; Diplomate, American Board of Dermatology and Syphilology. 497 pages. Illus. Price, cloth, $4.75. Philadelphia: J. B. Lippincott Co., 1944.

OFFICE TREATMENT OF THE NOSE, THROAT AND EAR. Abraham R. Hollender, M.Sc., M.D., F.A.C.S. Associate Professor of Laryngology, Rhinology and Otology, University of Illinois College of Medicine; Otolaryngologist, Research and Educational Hospitals, Chicago. 480 pages. Illus. Price, cloth, $5.00. Chicago: Year Book Publishers, 1943.

PSYCHOSOMATIC MEDICINE. Edward Weiss, M.D. Professor of Clinical Medicine, Temple University Medical School, Philadelphia; and O. Spurgeon English, M.D. Professor of Psychiatry, Temple University Medical School, Philadelphia. 687 pages. Price, cloth, $8.00. Philadelphia: W. B. Saunders Co., 1943.

HEALTH EDUCATION ON THE INDUSTRIAL FRONT. 1942 Health Education Conference of the New York Academy of Medicine. 63 pages. Price, cloth, $1.25. New York: Columbia University Press, 1943.

A TECHNICAL MANUAL FOR THE RESCUE SERVICE. U. S. Office of Civilian Defense. 142 pages. Illus. Price, paper cover, 20 cents. Washington, D. C.: U. S. Government Printing Office, 1943.

HEALTH OF CHILDREN IN OCCUPIED EUROPE. 36 pages. Price, 25c, paper cover. Washington, D. C.: International Labor Office, 1943.

NERVOUSNESS, INDIGESTION AND PAIN. By Walter C. Alvarez, M.D., Consultant in the Division of Medicine, Mayo Clinic, Rochester, Minn. 488 pp. Price $5.00. New York: Paul B. Hoeber, Inc., 1943.

This is a book that is definitely "different." It demonstrates why, in taking the history, examining and handling the patient, doing the laboratory tests, making the diagnosis and outlining the treatment, the nervous and mental system is not to be dealt with as a thing set apart and reserved more or less for the neurotic, psychoneurotic, and insane, but is an integral part of every patient. It illustrates how the function of the nervous and mental system, the psychology of the patient, affects and is affected by disease and disorders,

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particularly of the digestive tract. The mechanism of pain and its relation to various disorders is especially interesting and enlightening. It discusses many interesting, sometimes puzzling, yet common, clinical entities particularly in relation to the digestive tract which are not dealt with in most medical books, and offers many clever and practical suggestions in their diagnosis and treatment. To mention a few: the chronic dyspeptic, constiutional inadequacy, nervous breakdown, irritable bowel, flatulence, pseudoappendicitis, the post-cholecystectomy syndrome, nervous vomiting, migraine, poorly adjusted persons. The chapter on planning the examination is worth the price of the book.

The approach is not that of a neurologist or a psychiatrist but that of an internist and gastroenterologist who has attempted to synchronize and coördinate these various approaches to diagnostic and therapeutic problems.

It is most interestingly written in a narrative style, including at the beginning of each chapter many charming quotations from medical and classical literature. It is replete with pointed anecdotes gathered from the personal experiences of a long and active medical career. It is of a semipopular nature not too technical to be used as casual and entertaining reading, yet containing a wealth of information, clever diagnostic and therapeutic tricks and valuable suggestions to be used by the physician in his daily practice.

On the jacket of the book the publisher states that it is a book that the physicians could recommend to their patients. This practice does not always work out for the benefit of either the patient or the physician.

LLOYD L. MERRIMAN, M.D.

MEDICAL MALPRACTICE. Louis J. Regan, M.D. 256 pages. Price $5.00. St. Louis: C. V. Mosby Co., 1943.

The reading material of this book is devoted to the discussion of over 1,400 cases for suits for malpractice brought against physicians in this country. Toward the close of the book, the author lists these cases according to the states in which they took place. To this list, the state of Minnesota contributed forty-six cases. The author states that "six times as many patients sued their doctors in 1935 as in 1921." It would be of much help to every medical student to have a full knowledge of medical malpractice as this book presents the subject. It would also serve as a refresher course for those who have been in the practice of medicine for some time, although it would prove to be a poor substitute for a bedtime story. Failure to take the proper number of x-rays in case of fractures is a frequent cause of law suits; and the careless or unfriendly remarks of a second physician in a case has often served to give the patient an idea and a law suit has resulted. This volume is a worthy addition to any medical man's library.

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